

The Deposition of
DR. RICHARD V. BARATTA, PH.D, P.E.

In the Matter of
JEFFREY KILLIAN AND BRANDY BANES
versus
DEAN ANDERSON, ET AL

Taken On
JANUARY 12, 2021



UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF LOUISIANA
ALEXANDRIA DIVISION

JEFFREY KILLIAN AND
BRANDY BANES

* NO. 1:19-CV-01220

* JUDGE DRELL

VERSUS

* MAGISTRATE JUDGE PEREZ-
MONTES

DEAN ANDERSON, CENTRA
TECHNOLOGY, INC. AND
HANOVER INSURANCE COMPANY

*

* * * * *

The deposition of DR. RICHARD V. BARATTA,
PH.D., P.E., taken in connection with the
captioned cause, pursuant to the following
stipulations before Cynthia M. Hare, Certified
Court Reporter, at 3500 North Causeway
Boulevard, Suite 350, Metairie, Louisiana
70002, on the 12th day of January 2021,
beginning at 12:56 p.m.

1 APPEARANCES :

2
3 FOR THE PLAINTIFFS, JEFFREY KILLIAN
4 AND BRANDY BANES:

5 BRIAN M. CAUBARREAU, ESQUIRE
6 BRIAN CAUBARREAU & ASSOCIATES
2204 MacArthur Drive
Alexandria, Louisiana 71301

7
8 FOR THE DEFENDANTS, DEAN ANDERSON, CENTRA
TECHNOLOGY, INC. AND HANOVER INSURANCE COMPANY:

9 PAUL LAVELLE, ESQUIRE
10 COTTEN SCHMIDT, LLP
650 Poydras Street, Suite 1950
11 New Orleans, Louisiana 70130

12 ALSO PRESENT:

13 SUE LAVELLE
14
15
16
17
18
19
20
21
22
23
24
25

S T I P U L A T I O N

It is hereby stipulated by and among counsel for plaintiff and counsel for defense that the deposition of

DR. RICHARD V. BARATTA, PH.D., P.E.
be taken before Cynthia M. Hare, Certified Court Reporter, by counsel for the plaintiffs, for all purposes, pursuant the appropriate statutes of the Federal Rules of Civil Procedure.

The parties hereto waive all formalities in connection with the taking of said deposition, except the reading and signing thereof, the swearing of the witness and the reduction of the questions and answers to typewriting.

Counsel for all parties reserve all objections, except as to the form of the question and responsiveness of the answer, at the time of taking said deposition, but they also reserve the right to make objections at the time said deposition or any part thereof may be offered in evidence, with the same rights as if the testimony had been taken and given in Open Court.

* * *

INDEX

EXAMINATION BY MR. CAUBARREAU 5

OBJECTIONS:

BY MR. LAVELLE 21, 22, 41, 49, 54, 66, 70

EXHIBITS:

EXHIBIT 1 - Information Sheet 7

EXHIBIT 2 - Report 8

1 DR. RICHARD V. BARATTA, PH.D., P.E.,
2 after having been duly sworn, was examined and did
3 testify as follows:

4 EXAMINATION BY MR. CAUBARREAUX:

5 Q Sir, I'm Brian Caubarreaux. I represent the
6 plaintiffs, Ms. Banes and Mr. Killian. If you
7 could, please state your full name and
8 professional address for the record.

9 A My full name is Richard Victor Baratta. My
10 professional address just changed, so up until
11 a few months ago it was 8 Greenway Plaza, Suite
12 500. And right now, I don't remember what it
13 is because I haven't moved into the new office.

14 Q And what town are you --

15 A My office is in Houston, Texas.

16 Q Houston, okay. Now, if you could, tell me
17 about your educational background.

18 A Sure. I have a bachelor's degree from Tulane
19 University in biomedical engineering and
20 mathematics. I took that in 1984. And then I
21 got a master's degree in biomedical engineer,
22 also from Tulane. I got that in 1986. And
23 finally, my Ph.D. was in biomedical
24 engineering, also from Tulane in 1989.

25 Q What is the profession, biomedical engineering

1 encompass?

2 A So the start to finishing of biomedical
3 engineering is the application of principles of
4 engineering to questions that arise in medicine
5 and biology.

6 Q In this particular case you've been asked to
7 give an opinions in what areas?

8 A Accident reconstruction and biomechanics.

9 Q I saw in your reports with regard to accident
10 reconstruction you were not asked to give an
11 opinion with regard to who caused the accident.

12 A That is correct.

13 Q Okay. The correspondence that requested what
14 parameters, or topics you cover and don't
15 cover, do you have that, and is that
16 encompassed in this zip drive you just gave me
17 before this deposition?

18 A I don't know what there is an express place
19 where it specifically says that that -- I don't
20 know that such a thing exists.

21 Q Are you normally, when you're called upon to
22 give an -- do an accident reconstruction, asked
23 not to comment on who caused the accident?

24 A In the course of my practice, more often than
25 not, that is the case.

1 MR. LAVELLE:

2 If you're looking for the information
3 that was given today?

4 MR. CAUBARREAU:

5 Yes, sir.

6 MR. LAVELLE:

7 I believe that was information obtained
8 from me.

9 MR. CAUBARREAU:

10 Yes, sir.

11 THE WITNESS:

12 So towards the bottom there, there's a
13 question of what they would like from
14 Rimkus.

15 MR. CAUBARREAU:

16 I'm going to attach a copy of this as
17 Exhibit 1.

18 MR. LAVELLE:

19 You want to put a sticker on it?

20 MR. CAUBARREAU:

21 I am, if that's okay. Is this a copy,
22 or this is your original?

23 MR. LAVELLE:

24 Well, it's not an original, I just
25 printed it off of my material that I had

1 today. So I've got it electronically, but
2 that's the only copy I have with me. But
3 we can use it.

4 MR. CAUBARREAU:

5 Okay, I'll put this as Exhibit 1.

6 MR. CAUBARREAU:

7 Q As part of this process of retention of you as
8 an expert, you were asked to generate a report,
9 correct?

10 A Yes, sir.

11 Q I'd like you to look at this report.

12 MR. CAUBARREAU:

13 Paul.

14 MR. LAVELLE:

15 All right.

16 MR. CAUBARREAU:

17 Q I'd like you to look at it and see if this
18 encompasses the entirety of your report and all
19 the information generated in this case.

20 A This is the report, and I see the usual
21 attachments towards the end of it. It appears
22 that it is, sir.

23 Q Okay. We're going to be talking about it a lot
24 so I'm going to mark that as Exhibit 2.

25 MR. LAVELLE:

1 This is the report that was produced on
2 October 30, 2020?

3 MR. CAUBARREAUX:

4 Correct. And it has your cover letter
5 sending it to me on that date.

6 MR. LAVELLE:

7 Okay.

8 MR. CAUBARREAUX:

9 This will be 2 in globo (Exhibit 2).

10 MR. CAUBARREAUX:

11 Q And you have a copy of that report in front of
12 you, correct?

13 A Up to the figures.

14 Q Okay. So you were called upon to do an
15 accident reconstruction, not to determine fault
16 but to attempt to determine forces of the
17 vehicles or occupants in the accident; am I
18 fair in understanding it that way?

19 A Fairly close. Not strictly forces, but
20 dynamics.

21 Q In doing these accident reconstructions, what
22 type of information do you want to gather?

23 A Well, usually what we will -- we will gather
24 damage information regarding the damage to the
25 vehicle. We will gather, also, the vehicle's -

1 - we will also gather information regarding the
2 dimensions and the -- and other inertial
3 properties of the vehicles.

4 Q Inertial properties of a vehicle, what is that?

5 A It starts with the weight. And it also uses
6 other analogs to weight, but that involve
7 rotation.

8 Q Okay, what are those analogs?

9 A So the -- they're called moments of inertia.
10 And there's three of them, one across -- one
11 around each axis.

12 Q Okay. And how do you -- what are you looking
13 for when you look at a car, or a particular
14 vehicle to determine these three things?

15 A That is generally given in -- in published
16 information.

17 Q And what is it telling you?

18 A It's telling you what is the current weight of
19 the vehicle. It is also telling you what are
20 the three moments of inertia of the vehicles.
21 And to make it -- to make it easy to
22 understand, moment of inertia is how easy it is
23 for a vehicle to rotate, to -- as opposed to
24 push something, which would be the weight, as
25 how much it tends to rotate. Either to yaw, to

1 roll, or to pitch.

2 Q So in looking at that, how do you determine,
3 are you looking at the suspension, the tires,
4 are you looking at the roadway, the friction
5 coefficient of the roadway, is it asphalt, is
6 it dirt, is it mud, is it ice? Are you looking
7 at all of those different factors, or no?

8 A Those different -- those factors, unless one
9 has reason to think otherwise, are basically
10 built in. We normally work on friction
11 coefficients in the range of .7. But these are
12 the ways -- these are -- the co-moments of --
13 and they're simply is how hard it is to take
14 something and spin it, excluding -- excluding
15 friction and other things like that.

16 Q Those things are a factor, are they not?

17 A They are, but this is in the same way that the
18 weight is separate and independent of -- of
19 friction, so are the moments of inertia.

20 Q Okay. So it's not important, then, to look at
21 whether or not you're dealing with asphalt
22 surface versus concrete surface, whether or not
23 you're dealing with certain types of tires
24 versus other types of tires, when you're
25 determining whether or not there's a spin rate

1 on a vehicle?

2 A The differences between concrete and asphalt
3 are small enough that it makes no meaningful
4 difference. And the difference in tires also
5 make no meaningful difference.

6 Q Whether -- how about a wet road versus a dry
7 road?

8 A Yes, then you have a greater -- if the road is
9 wet, then the vehicle has a greater potential
10 to spin. Not because of its inertial
11 properties, but because it has lower -- it has
12 lower friction with the road.

13 Q Did you take that into account in this
14 particular case?

15 A It was assumed that the roadway was dry.

16 Q Okay. You assume that?

17 A Presumed that.

18 Q Presumed that. Okay. Did you inspect the
19 scene of the accident?

20 A By "scene," you mean site, no, sir. Not
21 physically.

22 Q So you didn't go to the scene where the
23 accident occurred to look at the roadway, look
24 at the way the place laid out?

25 A No, other than through Google maps.

1 Q Did you physically inspect the vehicles
2 involved in the accident?

3 A We performed physical inspections of the
4 trailer, and I think that was it. I think we
5 took photographs of the other vehicles that
6 were on the trailer, if I recall correctly.

7 Q Did you inspect the Ford that was being driven
8 by Mr. Killian?

9 A Not physically.

10 Q Well, it's either you did or you didn't. Did
11 you inspect it or not?

12 A I don't believe we did.

13 Q Okay. How about the GMC, did you inspect that?

14 A No, sir.

15 Q Do you know the extent of the damage done to
16 the GMC?

17 A I know the damage shown by the photographs.

18 Q But do you know the full extent of the damage
19 done to the GMC that was driven by your -- by
20 the person -- the attorney's -- by the client
21 whose attorney hired you?

22 A Not outside of what was shown in the
23 photographs.

24 Q So how many photographs did you look at?

25 A We had one photograph of the Chevrolet.

1 Q Did you have any damage estimates to show you
2 if there was any undercarriage damage, or
3 structural damage, or the vehicle was totaled
4 or anything like that?

5 A There was no repairs to make for that
6 Chevrolet.

7 Q Do you know if the air bags deployed?

8 A There was no indication in the accident report
9 that they did.

10 Q Do you know if the air bags deployed, yes or
11 no?

12 A I have no evidence that they did.

13 Q Do you have any evidence that they didn't?

14 A No, sir.

15 Q So you don't know if they deployed.

16 A I presume, based on my looking at the
17 photographs that they did not.

18 Q At the photograph, is there more than one?

19 A No, excuse me, that one that I saw.

20 Q When you inspected the trailer that was
21 involved in the accident, did you weigh the
22 trailer?

23 A No, sir.

24 Q Was there anything keeping you from weighing
25 the trailer?

1 A Simply the condition and location of the
2 trailer were not conducive to weighing it.

3 Q Okay. Do you -- did you request that it be
4 moved and weighed?

5 A No, sir,

6 Q Would the weight of the trailer, the exact
7 weight of the trailer make a difference in your
8 analysis?

9 A Not a meaningful one.

10 Q Well, what's an un-meaningful one? What would
11 it -- what would it change?

12 A Sure. We -- it would change, for example, the
13 accelerations of the -- of the Ford. It might
14 change them from just one 1g to about 1.2g's.
15 And the longitudinal acceleration of the Ford
16 from about 1 and a half g to about 2g',
17 depending on the weight, ranging all the way
18 from 2,000 to 4,500 pounds.

19 Q So it changes the forces on the people in the
20 accident, the weight of the trailer?

21 A Sure.

22 Q Do you know how much the ATV weighed?

23 A I don't know that as I sit here. And again,
24 when I talk about the trailer, it's the
25 composite weight of the entire trailer.

1 Q That means with the stuff on it.

2 A Yes.

3 Q Okay. But do you know how much the mower
4 weighed?

5 A No.

6 Q Do you know how much the ATV weighed?

7 A No.

8 Q And you don't know how much the trailer
9 weighed.

10 A Correct.

11 Q Now, with regard -- since you didn't inspect
12 the Ford and you didn't inspect the GMC, I'm
13 assuming you didn't download the ECM data.

14 A Correct. The -- the -- we did not download the
15 ACM data of the GM or the Ford.

16 Q Did you ever request to download it?

17 A No, sir, it made no sense to request a
18 download.

19 Q Okay, and why is that?

20 A Two reasons. Number one is, the Ford being a
21 non-contact vehicle, the Ford -- there is no
22 reasonable expectation that there's going to be
23 a deployment in the air bag of that vehicle --
24 excuse me, there's going to be no recording.
25 Because it takes a meaningful -- takes a

1 meaningful change in speed of at least five
2 miles an hour over 150 milliseconds in order
3 for there to be a recording.

4 Q But you're assuming that the Ford did not have
5 that because you assume that and didn't
6 download the data.

7 A No, sir, not assume. We preformed analyses
8 that showed small accelerations and essentially
9 no --

10 Q Let me ask you this question, if I --

11 MR. LAVELLE:

12 Excuse me, let him finish his answer,
13 please.

14 MR. CAUBARREAUX:

15 Q If I went download the data and it shows that
16 there was a event, would your analysis then not
17 be correct?

18 A If the dynamics of that event and the time of
19 that event and everything of that event was
20 consistent with this accident, then yes.

21 Q So if we downloaded the data and it showed that
22 there was an event consistent with this
23 accident, your analysis here would be flawed?

24 A And that shows -- that showed something
25 different -- meaningfully different than this

1 analysis, then yes, sir, it would be.

2 Q Okay. How about the GMC data?

3 A The GMC data, also there was no reasonable
4 expectation of a -- of an event because that
5 GMC is an older vintage GMC, that if it has a
6 recording, that recording would be cleared
7 within 250 ignition cycles. If that vehicle is
8 being used on a routine basis, there is
9 literature that tells us that vehicles that are
10 used routinely undergo six to seven ignition
11 cycles per day. So in about 40 days after the
12 accident, you can reasonably expect that the
13 data would be gone. Now, being that we're
14 engaged so much after the accident, there's no
15 reasonable expectation that there will be
16 recording there.

17 Q Do you know if the vehicle was parked, totaled,
18 sitting there for two years in a corner of some
19 shop, do you know that?

20 MR. LAVELLE:

21 Which vehicle?

22 MR. CAUBARREAUX:

23 The GMC.

24 THE WITNESS:

25 I do not know that specifically.

1 MR. CAUBARREAU:

2 Q Did you ask?

3 A No, sir.

4 Q Did you request information regarding that?

5 A No, sir.

6 Q If likewise, if that data is available, is it
7 important in an analysis like this?

8 A If it were to exist, it could reasonably be.

9 Q Okay. Well, let me ask you this question,
10 let's take the defendant driver's testimony is
11 true that he hit the trailer going 20 miles an
12 hour, --

13 A Yes, sir.

14 Q -- would that record an event on a GMC such as
15 this?

16 A It might.

17 Q What would cause it not to?

18 A Well, ultimately, it's the interaction between
19 the two vehicles. I don't know what the exact
20 delta-V there is. And those older GM models
21 did not have set numbers to get an undeployment
22 event.

23 Q What would a delta-V be of a GMC running into a
24 trailer that just stopped in the road --
25 crossing the roadway, is that pretty simple to

1 analyze?

2 A No, it depends on the weight distribution and
3 the weight of the other vehicle.

4 Q Which you don't know.

5 A Again, I have -- I don't know specifically.
6 I've calculated -- I've done a range of
7 calculations with the range of weights for that
8 trailer.

9 Q So you ranged all this weight -- or some of --
10 can you tell me what the delta-V's would be in
11 your range?

12 A For that, the delta-V's would be -- I can't
13 tell you as I sit here because I just -- I just
14 don't have that calculation in front of me.
15 But if you're looking at a vehicle that weighs,
16 let's say, 4,000 to 4500 pounds and it gets hit
17 by another vehicle at 20 miles an hour, it
18 would probably be somewhere in the range -- and
19 again, hits it sideways -- 10/12 miles an hour,
20 maybe.

21 Q Okay, so it would cause the trailer that's
22 parked in the road to be -- have 10 to 12 miles
23 an hour of force exhibited on it?

24 A For the -- it would cause the GM to slow down
25 by that much and to rotate the trailer.

1 Q Okay. So you don't have any of the
2 calculations with you?

3 A Correct.

4 Q Are these calculations on this jump drive you
5 gave me?

6 A Yes, sir. The whole simulations are there.

7 Q All right. Well, let me ask you this question,
8 you looked at this whole scenario, do you have
9 an opinion as to who caused this accident?

10 MR. LAVELLE:

11 Object to the form of the question.

12 MR. CAUBARREAUX:

13 You an answer it.

14 THE WITNESS:

15 I don't have an independent opinion who
16 caused the accident.

17 MR. CAUBARREAUX:

18 Q You don't have -- you're an accident
19 reconstructionist and you don't have an opinion
20 of what caused this accident?

21 A I said I don't have an independent opinion.

22 Q What would cause you to have an independent
23 opinion?

24 A To have done a complete analysis.

25 Q Okay, and what would a complete analysis be?

1 A Something -- to do an analysis just beyond
2 reading the accident report. I mean, this is
3 as far as -- as far as -- as that is, I have no
4 reason to believe that it's any different than
5 what the -- than what the officer identified.

6 Q Okay, I guess this is a dumb question, but how
7 can you do a non-complete analysis of an
8 accident reconstruction to garner information
9 with regard to the kinetics of -- then the
10 movements of an occupant in another vehicle
11 when you didn't do the complete analysis to
12 determine what really happened? You're giving
13 an opinion, an expert opinion about somebody's
14 body moving this way or that in a car, however,
15 you didn't do a complete analysis of it.

16 MR. LAVELLE:

17 Object to the form.

18 MR. CAUBARREAU:

19 Q Is that a dumb question?

20 A No, it's not a dumb question.

21 MR. LAVELLE:

22 It's an argumentative one.

23 MR. CAUBARREAU:

24 Q Well, it's -- you need to do an analysis to get
25 to the bottom of what happened in the accident,

1 right?

2 A Well, that -- what happened is different
3 questions provide different answers. And the
4 question that I'm looking at is strictly on the
5 kinetics, on the motions of the vehicles, and
6 of its occupants. I did not do an independent
7 at-fault analysis. Now, if the officer -- if
8 the officer concluded that the driver of the
9 GMC was at fault, I have no reason to contest
10 that.

11 Q Did you see anything that would tell you
12 otherwise in this analysis?

13 A No.

14 Q Okay, let's go through your report a little bit
15 if we can. You indicated in the report that
16 the accident happened on Highway 165 and 167,
17 correct?

18 A Yes, sir.

19 Q Which road was Mr. Killian on?

20 A Mr. Killian was on the southbound exit ramp
21 from US 167 and turning northwards into 165
22 northbound.

23 Q Okay. Now, he was attempting to turn left onto
24 US 165, correct?

25 A Yes, sir, going --

1 Q The scale, I guess, is wrong. Is this a copy
2 of the accident report diagram in your report?

3 A Yes, sir.

4 Q That you like, blew up?

5 A Yes, sir.

6 Q And you have the vehicle number one, which
7 would be the GMC --

8 A Yes, sir.

9 Q -- proceeding on 165.

10 A Yes, sir.

11 Q Okay. Now, you have in your report, "Both
12 vehicles entered the intersection attempting to
13 turn left." Where did you get that from?

14 A I guess I -- it should have been just Mr.
15 Killian vehicle, not the other one.

16 Q So that's incorrect.

17 A It appears that way.

18 Q The vehicle driven by vehicle number one -- the
19 vehicle number one was attempting to go
20 straight, correct?

21 A Yes, sir.

22 Q That was your understanding.

23 A Yes.

24 Q And in an attempt to try to avoid hitting the
25 trailer or Mr. Killian, the driver of vehicle

1 one attempted at the last moment to turn right
2 --

3 A Veer right, yes sir.

4 Q -- veer right, and that's when the impact
5 occurred.

6 A Yes, sir.

7 Q Then you cite in here, I'll get to that now, I
8 guess -- I'm just going down your report, you
9 retained to look at the dynamics of the
10 accident and determine the motions and
11 mechanisms that the Ford's occupants sustained
12 in relation to their injuries they had claimed.
13 That's what you were hired to do, correct?

14 A Yes, sir.

15 Q And that you conduct work and invoice at the
16 rate of Four Hundred Forty-Five Dollars
17 (\$445.00) an hour. How much did you invoice in
18 this case?

19 A I don't know that as I sit here.

20 Q Is that on this little jump drive?

21 A Yes, sir.

22 Q Were you provided any other information after
23 your analysis and report?

24 A I don't think -- I don't think I have.

25 Q Like the policeman's deposition, the police

1 officer's deposition?

2 A I don't know if I received that since.

3 Q Okay. So your opinions are based on all the
4 information that you were given, which would
5 have been -- I'll tell you what, tell me what
6 information you were given to review.

7 A The information within the basis of the report,
8 which starts on page 18. It's the information
9 that is listed there.

10 Q That would be the crash report, ten
11 photographs, some of which are not in your
12 report.

13 A Correct.

14 Q And those are on this little jump drive you
15 gave me before the deposition?

16 A Those ten photographs would not be there
17 because those were within the production of
18 documents.

19 Q Okay. What ten photographs did you look at?

20 A It was ten photographs that were within the
21 production -- the documents that were produced
22 between the parties. So I don't know those
23 specifically.

24 Q Can you -- are those archived somewhere?

25 A They would be within the files, within the

1 documents that were provided to us. Normally we
2 don't -- we don't regurgitate those in the
3 materials that we --

4 Q Well, I asked for all of that information in
5 the subpoena. That wouldn't be on this jump
6 drive?

7 A I don't think it is.

8 Q Okay, can I get a copy of those from someone?

9 A Yes, sir.

10 Q Okay, can you provide them to your counsel and
11 he can send them to me?

12 A Yes, sir.

13 Q That would be fine, thank you.

14 You looked at one photograph of the
15 Chevrolet; ten photographs of the trailer; the
16 repairs to the trailer; autostats dimensional
17 data for the Ford and Chevy; the trailer was
18 inspected by James Sprader of Rimkus. Did you
19 actually go and look at the trailer yourself?

20 A No, sir, Mr. Sprader, who's one of my
21 colleagues, looked at the vehicle.

22 Q Okay, so earlier when I asked if you looked --
23 inspected the trailer, the answer is no, you
24 did not inspect the trailer.

25 A I did not personally inspect the trailer, one

1 of my colleagues inspected it on my behalf.

2 Q So by "you," for me that means us.

3 A Not -- not the individual.

4 Q For future reference, when I ask you, I don't
5 mean us, I mean you specifically, okay. And if
6 you need to clarify that, please do. But you
7 means you as far as I'm concerned.

8 A Okay.

9 Q You looked at the transcript of Mr. Killian's
10 deposition; you looked at medical records for
11 Mr. Killian; transcript of Ms. Banes'
12 deposition; and medical records for Ms. Banes;
13 and various materials were referenced,
14 including, and you list a bunch of treatise
15 articles and whatnot.

16 A Yes, sir.

17 Q Did you look at any causation letters with
18 regard to Ms. Banes or Mr. Killian from their
19 orthopedic surgeon or neurosurgeon?

20 A Not if they were not contained -- not if they
21 weren't contained within the medical records.

22 Q Do you recall looking at causation letters with
23 regard to Ms. Banes and Mr. Killian from a
24 neurosurgeon and an orthopedic surgeon?

25 A No, sir, I don't recall as I sit here.

1 Q Are all of the materials that were provided to
2 you for your review, and all of the medical
3 records on this jump drive that you gave me
4 before the deposition?

5 A No, sir. As I said, the materials that were
6 provided to me are not -- are not regurgitated
7 there. But I'd be happy to provide those.

8 Q Okay. You received this subpoena, you were
9 served with it, and I understand Mr. Lavelle
10 says that he didn't receive it. And if he
11 didn't, I -- we retain any rights you have, I'm
12 not trying to box you in. But I just want to
13 ask this for future reference. I asked you for
14 all of -- copy of all documents that you were
15 provided from any attorney or third-party in
16 connection with your work in this case. That
17 would mean all medical records, anything that
18 you got from anyone to help formulate your
19 opinion.

20 A Yes, sir.

21 Q Is there anything other than the photographs
22 and the medical records that you reviewed that
23 is not on here?

24 A In there, generally, materials that were purely
25 furnished to -- that are part of the discovery

1 process are not in there.

2 Q What else was exactly -- I mean, this list you
3 gave us, but we don't know what's in it.

4 A What's in there is basically the materials that
5 we have provided, that we have generated, that
6 we have provided, that we have reviewed, other
7 than the things that were a part of the
8 discovery process.

9 Q I don't understand what that means.

10 A Sure. Simply, the materials that we generated,
11 that I generated, our inspection photographs,
12 our calculations, a copy of our report, et
13 cetera, the correspondence and so on, those
14 materials are there.

15 Q But the information that was sent to you to
16 start your analysis is not in there.

17 A Correct.

18 Q Okay. If I can get a copy of all of that.

19 A Yes, sir.

20 Q Okay, thank you.

21 MR. LAVELLE:

22 All right, so I understand, you're
23 talking about like if I sent you the
24 responses to the request for production and
25 interrogatories, you have those but they're

1 not on the thing?

2 THE WITNESS:

3 Correct.

4 MR. LAVELLE:

5 So example, the police report, I know I
6 sent you that, would that be on that?

7 THE WITNESS:

8 No, the police report would not be
9 there. So strictly materials that were
10 sent to us that are generally part of a
11 discovery process are not contained there.

12 MR. CAUBARREAUX:

13 Q I want to know what you looked at. You
14 formulate an opinion, I want to know what you
15 looked at to formulate it. And I don't know
16 that 'cause the defense lawyer didn't send me a
17 copy of that. So I'm trying to find out what
18 you looked at and what you used to help make
19 your determination. So that's the purpose of
20 that.

21 A Understood.

22 Q Okay, if you can get that here -- a copy of
23 that on another jump drive, even, or send him
24 two of them and I'll -- forward one to me.

25 A I can do that, or I can send the link to our --

1 our exchange.

2 Q Whatever's easiest.

3 A The materials that we reviewed are listed in
4 the basis of the report, sir.

5 Q I don't want to be argue -- arguing with you,
6 but when you say "I looked at medical records,"
7 I don't know what that means. Medical records
8 are this thick. So did you look at this much
9 medical records, did you look at all of the
10 medical records, did you look at summaries of
11 medical records, what did you look at?

12 A Understood.

13 Q Okay?

14 A Sure.

15 Q Then you get to the conclusions, that's the
16 second -- page 2 of your report. "There was no
17 direct contact between the Chevrolet and the
18 Ford." You mean that because the Ford was
19 connected to the trailer with -- that was
20 contacted, there's no actual physical contact
21 made between the actual Ford truck and the GMC?

22 A Yes, sir.

23 Q Okay. Now, you have, "The Ford was coupled to
24 a trailer via hitch connection. This type of
25 connection has limited ability to transmit

1 dynamic motion to the Ford." What exactly does
2 that mean? So I'll ask this question, let's
3 say the Ford is parked sitting there at a red
4 light and the GMC runs into the back of the
5 Ford, is the motion going to be transferred to
6 the Ford?

7 A You mean, back -- to the back of the trailer?

8 Q To the back of the trailer, to the back of the
9 Ford.

10 A The short answer is mostly yes. So
11 longitudinal forces, sure; lateral forces, not
12 to the same degree.

13 Q So we're talking about longitudinal and lateral
14 forces here.

15 A Yes, sir.

16 Q One is being pushed from the back or the front?

17 A Yes.

18 Q And one's being pushed from the side, either
19 side back or forth?

20 A Yes, sir.

21 Q Were there longitudinal and -- were there both
22 forces in this collision, according to you?

23 A Yes, sir.

24 Q How are those forces created in an impact such
25 as this?

1 A That's -- I can't answer that question, it's
2 not very clear.

3 Q Okay. A GMC Suburban hitting a trailer from
4 the side, what type of forces does it put on
5 the truck pulling it?

6 A Well, we have -- we have to start -- when
7 you're showing me, you're showing a direct 90
8 degree impact. So this is a little bit
9 different from that. There's more of an angle
10 here, from front to back.

11 Q Angle from who? From which vehicle?

12 A The angle between the trailer and the GMC --
13 the Suburban. So the Suburban is attempting to
14 turn right, that's why it hits -- it hits at an
15 angle in the trailer. So it actually puts a
16 rearward directed force on the trailer.

17 Q Uh-huh.

18 A And those forces are transmitted, for the lack
19 of a better term, I'll say more or less
20 efficiently in the longitudinal direction. The
21 lateral forces, not so much, because now the
22 vehicle starts to swing around. And so instead
23 of all of its lateral force being transmitted
24 to the Ford, what it does, it starts yawing
25 because it's being controlled, or limited its

1 motion by the front.

2 Q It's your opinion that the trailer swung out
3 from the back of the GMC, away from the GMC?

4 A It would move -- it would swing out away from
5 the GMC during the contact.

6 Q You'd agree with me in looking at photographs,
7 since you didn't look at the trailer, that the
8 utility trailer being used, the tires are not
9 accurately reflected as the position on the
10 trailer body, correct?

11 A Correct.

12 Q They're moreso in the middle, are they not?

13 A Yes, sir.

14 Q So we know that the front tire and the back
15 tire were hit -- impacted.

16 A Yes, sir.

17 Q And we know that while the impact was
18 happening, the GMC was attempting to go right.

19 A Yes, sir.

20 Q In your report you also say that Mr. Killian
21 was braking at the time.

22 A Yes, sir.

23 Q Where did you get that he was braking?

24 A Oh, actually, let me -- I need to go where I
25 said that 'cause I think he actually said that

1 he was accelerating. Can you help me?

2 Q I'll find it for you, I thought you knew.

3 A No.

4 Q Okay, so I'll find that in a minute. I want to
5 go through the entirety of your report. But
6 let's assume that Mr. Killian is accelerating.

7 A Yes.

8 Q Okay. And the vehicle that -- the GMC that
9 hits the center of the trailer is trying to
10 stop and he's trying to pull away. What is
11 that going to do to the forces on the trailer
12 at the time of the accident? It's going to try
13 to push it backwards?

14 A Yes.

15 Q Do you know if it was going to try to yaw the
16 back of the trailer, or if it was going to try
17 to yaw the front of the trailer over?

18 A Well, when it hits it over the tires, it's just
19 pushing it, and the result is a yaw.

20 Q Okay. Do you know if the truck itself was
21 pushed, as well?

22 A The truck -- the Ford?

23 Q Yes.

24 A It would not be, because the trailer would
25 rotate about the hitch. They would experience

1 a shaking motion, certainly.

2 Q I think you have it a vibration.

3 A Sure.

4 Q Okay. What you said was not significant here
5 at all.

6 A It would not be significant in terms of a real
7 potential to cause -- to cause just meaningful
8 motions of the occupant.

9 Q Okay. You have that, "This collision would
10 have a character similar to a sideswipe with a
11 shorter time duration."

12 A Yes.

13 Q Okay. How do you get an intersectional t-bone
14 collision with one vehicle hitting another and
15 equate that to a sideswipe?

16 A The way that you equate it with a sideswipe is
17 in a sideswipe, the vehicle has -- the vehicle
18 shakes. Whereas in a t-bone, in a proper t-
19 bone, then the vehicles have undergo a
20 meaningful net motion. The trailer certainly
21 would have a net motion. So if there was
22 somebody sitting in the trailer or in a vehicle
23 such as a trailer, then absolutely. But as I
24 mentioned before, what would happen is there
25 would be a shortly -- short lived acceleration

1 pulse that would be transmitted through the
2 hitch as the trailer started moving. And
3 that's why you made the analogy between that
4 and a sideswipe, because you have a short
5 acceleration pulse with no meaningful net
6 motion of the vehicle.

7 Q So if someone is on the trailer, on this
8 trailer during this accident, the motions are -
9 - the energy transferred to the occupant of the
10 trailer, there would be significant forces to
11 cause the injuries that they complained of, is
12 that what you're saying?

13 A No. No. What I'm saying is that there would
14 be meaningful motions of the vehicle, and there
15 would be meaningful motions of the occupants in
16 the trailer, had there been someone in the
17 trailer. The trailer, as it swings right, the
18 occupant would be -- tend to go left inside the
19 trailer -- inside the vehicle --

20 Q In this meaningful motion to cause what?

21 A It would have some potential to cause injuries.
22 Now, I didn't do a delta-V, but there would be
23 some meaningful potential to cause injuries if
24 we are looking just at the dynamics of the
25 trailer.

1 Q Okay. So if someone's in the trailer, there's
2 significant motion here to cause -- or
3 meaningful motion here to cause injury, but
4 not to the truck that's connected to the
5 trailer. That's basically it, right?

6 A In a big picture, the motions would be much
7 lesser in the truck and the potential for
8 injury would be much less.

9 Q And then you have, "Occupants" -- number three
10 here, "Occupants of the Ford would have
11 experienced minor motions within the vehicle.
12 And the accelerations would be well within
13 levels experience due -- during routine
14 activities of daily living."

15 A Yes, sir.

16 Q So this accident, you think is the same as
17 sitting in a chair and all that kind of stuff.
18 I've seen those --

19 A It's not the same. The magnitude of the
20 accelerations and hence, the inertial loads of
21 the occupants would be within the range of what
22 people undergo routinely.

23 Q Okay. Well, you have this sideswipe, and it's
24 painted red, and this is exhibit -- figure
25 number one.

1 MR. LAVELLE:

2 What page is that on?

3 MR. CAUBARREAU:

4 It doesn't have a page number, it's in
5 the attachments following the photographs.

6 MR. CAUBARREAU:

7 Q Now, what's the purpose of red, is that what
8 you're saying this accident is?

9 A It would be the equivalent of this accident, or
10 the range of this accident.

11 Q So the same thing as sitting in a chair?

12 A It would be coming down to sit into a chair.

13 MR. LAVELLE:

14 So not saying --

15 THE WITNESS:

16 Not sitting quietly, but just in the
17 process of coming down, sitting down into a
18 chair.

19 MR. CAUBARREAU:

20 Q And that's a compressive load.

21 A Yes, sir.

22 Q What about longitudinal or lateral loads of a
23 person's spine, is that indicated in this, or
24 no?

25 A It is not. And for a sideswipe, I need to

1 correct that because it is the result, which is
2 the sum of squares of compressive, plus the
3 lateral, plus the longitudinal.

4 Q So this -- you're trying to say with this
5 diagram that being in this accident is
6 equivalent to sitting down in a chair.

7 A The dynamic -- the dynamic accelerations of the
8 head and neck would be, yes, sir.

9 Q So to do that we have to say that you don't
10 believe that Mr. Killian is telling the truth
11 that they were pushed about 15 feet in the
12 truck?

13 A Not in terms of do I believe or not. I would
14 say that --

15 Q You said it under oath, it's whether -- and
16 you're saying no, that didn't happen, and
17 you're telling me you didn't do a full
18 evaluation in accident reconstruction, so I
19 want to know how you get that. Either he's
20 lying, it's impossible, I need to know.

21 MR. LAVELLE:

22 Object to the form of the question. You
23 can answer.

24 THE WITNESS:

25 Before I answer, I would really

1 appreciate it if you let me finish my
2 answers.

3 MR. CAUBARREAU:

4 Q Okay.

5 A I can't place belief or not in a single
6 individual, that is not my role. What I can
7 say is whether somebody's statement is or is
8 not consistent with the dynamics of the
9 accident.

10 Now, if we look at a base level of a
11 vehicle that is turning and another vehicle
12 that is hit -- hitting it in the generally
13 rearward direction, it cannot push it, it can
14 only slow it down, in terms of the longitudinal
15 -- now, if he moved that further distance, it's
16 not because of the impact, it is because of his
17 pre-impact velocity coupled with his post-
18 impact velocity.

19 So I'm not saying he's lying. I never
20 would do that because I know that people have
21 different perceptions of what happens in the
22 accident. But what I am saying is that if he
23 said that he was pushed forward due to an
24 accident that has primarily -- or that has in
25 the fore aftormation a rear component, then

1 that just is not consistent.

2 Q Okay, so let's assume if he was pushed sideways
3 from this accident, okay, would that be
4 significant force to cause a mechanism of
5 injury for this person in the Ford truck?

6 A There are some injuries who's -- that have
7 mechanisms that would be associated with a
8 meaningful lateral component. If there was a
9 meaningful lateral component to the accident,
10 there certainly are some injuries that could be
11 consistent with that.

12 Q Okay. So if he was pushed sideways 15 feet, as
13 he testified to, there is a meaningful
14 component of force here to cause an injury?

15 A Some specific injuries.

16 Q Okay. How about his injuries?

17 A There would still be no meaningful compressive
18 loads to the spine. There would be lateral
19 loads, which would certainly have the potential
20 to cause strains and sprains and that sort of
21 injury.

22 Q Uh-huh, okay. How about injuries to his
23 shoulder?

24 A There's a potential for left contact injuries
25 to the shoulder.

1 Q Okay.

2 A To the driver's left shoulder. Given those
3 dynamics that we discussed, moving that vehicle
4 laterally 15 feet.

5 Q "Spinal strains and sprains," this is number
6 four, "would not be consistent with the
7 dynamics of this accident."

8 A Yes, sir.

9 Q Now, are you a medical doctor?

10 A I am not a medical doctor, and I do not pretend
11 to be one.

12 Q Okay. Is it fair to say, sir, that you're here
13 to give an opinion that the forces in the
14 accident could or couldn't cause injury --
15 could or couldn't injure certain tissues of a
16 body, is that what you're trying to do, and not
17 give a medical causation opinion?

18 A Well, let's --

19 Q Or are you trying to give a medical causation
20 opinion, that's my question, I guess.

21 A Okay, so let -- number one, not a medical
22 opinion in any way, shape, or form. Number
23 two, the role of the biomechanics is not to say
24 whether something could or could not. When we
25 talk about could or could not, that puts us in

1 the realm of possibility. What we're looking
2 at is consistency, not causation. Whether the
3 mechanics of the accident are consistent with
4 the mechanics that are associated with specific
5 damages to tissue, again, that then get
6 translated as diagnosis by physicians.

7 Q Okay. But that doesn't take into account the
8 age of a person, the physical health of a
9 person, all those different things, does it?

10 A It does.

11 Q It does, okay. How does it?

12 A Two ways. Number one is, we take into
13 consideration the height and weight in
14 calculating the forces or the loads. And
15 number two, when we discuss a person's age and
16 so on, there are some age-related changes in
17 the tissues that tend -- not just to make a
18 person more frail, but to change the potential
19 for injuries in some individuals as opposed to
20 others.

21 So for example, in the general aging, in
22 the regular aging process, there's an
23 expectation, for example, that the potential
24 for strains and sprains is going to increase.
25 The potential for disc injuries, or damages to

1 the discs, does not necessarily go up in the
2 same way. It goes up to a small degree with
3 very minor degeneration to a small degree, and
4 then it tends to stabilize as degeneration
5 becomes more advanced.

6 Q So you're not here to day that these -- Mr.
7 Killian and Ms. Banes didn't get hurt in the
8 accident, you're just here to say that you
9 don't think it ruptured discs or caused any
10 shoulder injury?

11 A No, I'm here to say that the mechanics of this
12 accident are or not conducive to the different
13 types of injuries that were diagnosed here. I
14 can't say that Mr. -- Mr. Banes and -- excuse -
15 - Mr. Killian and Ms. Banes were not injured,
16 but what I can say is the types of forces that
17 they underwent in this accident are not
18 necessarily consistent with the types of forces
19 that cause those damages to those tissues.

20 Q Okay, so the ultimate person in this case to
21 tell us whether or not they feel that they were
22 hurt and required whatever medical treatment,
23 would be the medical physicians that treated
24 them, correct?

25 A Yes, sir. I would not be -- I would not be

1 arguing with physicians.

2 Q With regard to the trailer itself, I saw you
3 had an engineer that looked at it. What was
4 his name again?

5 A Jim Sprader.

6 Q Sprader, okay. Did he do any type of analysis
7 of how much force it would take to break that
8 axle of that trailer?

9 A No, sir.

10 Q Did you ask him to?

11 A No, sir.

12 Q Did you ask him to do an analysis of what it
13 would take to bend that -- those fenders and
14 deflect all of the railing of the trailer to
15 where it would bend all of that?

16 A No, sir.

17 Q Do you think that would be good information to
18 get when you're trying to determine the actual
19 speed of the GMC?

20 A No, sir.

21 Q It wouldn't be?

22 A It wouldn't be meaningful.

23 Q Okay. Why would it not be meaningful?

24 A Because it does -- it's not going to change the
25 dynamics of the accident, other than include --

1 other than increase the compliance of the
2 system.

3 Q Let me ask you this, if that GMC hit that
4 trailer going 45 miles an hour, you're telling
5 me that it wouldn't change the dynamics of this
6 accident?

7 A Oh, him hitting it at 40 miles an hour,
8 certainly.

9 Q How about at 30 miles an hour?

10 A It would be different than it would be at 40.

11 Q Well, wouldn't it be a good thing to know what
12 force it would take to break this type of
13 metal, or bend this type of metal?

14 A No, sir. Because the force that it takes to do
15 any kind of damage is reflected in the impact
16 with the other vehicle. And we are looking at
17 that through how much crush there is to the --
18 to the GMC.

19 Q But you didn't inspect -- I get that, but you
20 didn't inspect that, you inspected the trailer.

21 A Yes, sir.

22 Q So since you didn't inspect the GMC and don't
23 know what crush did -- it did to it, how is it
24 that the forces on the trailer are not
25 sufficient to get, to determine the actual

1 forces that were placed on the trailer, since
2 you don't know what the GMC looks like, you
3 don't know what the air bag deploy, you don't
4 know if the undercarriage is destroyed, you
5 don't know any of that. You have one picture.

6 MR. LAVELLE:

7 Let me object. Hold on a minute. You
8 have more of a statement together with
9 several questions in there, and I object to
10 you being argumentative with the witness
11 and raising your voice. So let's just calm
12 down and take it step by step, okay?

13 MR. CAUBARREAU:

14 Q So you don't know -- you did not look at the
15 GMC vehicle, correct?

16 A I did not physically look at the GMC vehicle.
17 We did have a photograph of the vehicle that
18 showed minimal indentation to the left front
19 corner.

20 Q That's what the photograph to you says.

21 A Yes, sir.

22 Q Okay. Do you know if there was any damage to
23 the side of the GMC, or to the other front
24 corner of the GMC?

25 A No, sir, it was obvious that was an angle

1 contact. That just -- that's just outside of
2 the point of contact of the vehicle.

3 Q My point is, since you don't know -- you don't
4 know from looking at the GMC, don't have the
5 downloaded data from the GMC, you don't have
6 any of the information from the GMC other than
7 a picture, and you were able to look at the
8 trailer. My question to you is, why wouldn't
9 you want to try to get as much information with
10 the forces required on the trailer to cause the
11 damage that you did have someone go look at in
12 determining the speed of the vehicle?

13 A Because I work with information that I have and
14 that's not necessarily germane. There are no
15 good information databases to tell us how much
16 force it takes to cause that axle damage.
17 There are good -- there are good databases that
18 tell us about how much crush it takes to push
19 in the side -- the front of that GMC. We know
20 the general dimensions of the bumper and we
21 know how far that got pushed in. We know that
22 it was not the depth of the bumper itself, or
23 it was barely the depth of the bumper.

24 Q So you know that from looking at that picture
25 how much damage was done to that GMC.

1 A How much crush there was to the front of the
2 GMC, which is the one parameter that is
3 relevant.

4 Q You have that, "The subject Ford reportedly no
5 body damage except for minor damage to the
6 connecting leaf springs." Did you request to
7 look at the vehicle -- the Ford to determine
8 what force it would have taken to break the
9 bolts for the leaf springs?

10 A No, not inspection of that vehicle. But this
11 is something that we have done a number of
12 times.

13 Q What have you done a number of times?

14 A Looked at when we had direct impacts to axle
15 and looking what kind of -- what kind of
16 severity of impact it takes to do that. And
17 it's surprisingly low.

18 Q On the truck itself?

19 A Yes.

20 Q Okay. Do you know what kind of force it would
21 take to bend the receiver hitch on a pickup
22 truck?

23 A I do. I don't know as I sit here, but it's a
24 couple thousand pounds.

25 Q So that's not significant to you, either.

1 A No.

2 Q Okay. And the receiver hitch is connected
3 directly to the frame of the truck, the Ford
4 truck, correct?

5 A The hitch receiver is, yes, sir.

6 Q So in your report towards the bottom of page 5,
7 you get, "Mr. Killian's vehicle then slid
8 sideways for about 15 feet."

9 A Yes, sir.

10 Q You would say on this accident, that's
11 impossible?

12 A And I said that's not consistent with the
13 mechanics of this accident.

14 Q That's not consistent with what you found,
15 based on your calculations.

16 A With a non-contact event to that Ford.

17 Q And then you have, "Mr. Killian claims that the
18 leaf spring on the trailer were broken and the
19 front axle of the trailer was bent as a result
20 of the accident."

21 A Yes, sir.

22 Q When you say "claims," what do you mean,
23 "claims"?

24 A That means that he stated that.

25 Q Well, would there be significant forces in your

1 opinion in this accident to break the bolts on
2 the leaf springs of his vehicle?

3 A Possibly.

4 Q Possibly, okay. But you don't know how much
5 force that would take.

6 A It would not take much force, sir.

7 Q But you don't know how much force it would
8 take, do you?

9 A Not as I sit here.

10 Q Okay. Ms. Banes also said the springs
11 underneath their pickup truck were damaged.
12 She also testified to that.

13 A Yes, sir.

14 Q If you would have done a complete accident
15 reconstruction analysis with measurements,
16 measured the length of the truck, measured the
17 length of the trailer, measured the roadways,
18 got out there and done all of those things and
19 did an actual recreation of the accident,
20 complete reconstruction, physically went and
21 looked at both vehicles to determine the actual
22 damage that was done to them, do you think you
23 would be in a lot better place with regard to
24 estimating the speed of the GMC when it hit the
25 trailer?

1 MR. LAVELLE:

2 Object to the form of the question.

3 You can answer.

4 THE WITNESS:

5 Depending on a number of factors. If

6 it -- if that was done immediately where

7 there still may be roadway evidence, then

8 --

9 MR. CAUBARREAUX:

10 Q Like skid marks and things like that?

11 A Correct.

12 Q So if you would have seen skid marks pushing
13 the vehicle 15 feet sideways, that would have
14 changed your opinion here?

15 A If I had seen said skid marks, then that would
16 factor into the opinions.

17 Q And may potentially change it.

18 A Well, it would be a basis for building opinions
19 on what is -- what is the ultimate analysis.

20 Q Also, whether or not there's a grass median in
21 between these two roadways that are going east
22 and west and it would determine where the truck
23 could actually turn or not turn?

24 A That may or may not influence. It depends --
25 it would depend on a number of factors. That

1 may or may not be influential.

2 Q Let me ask you this question, with the truck in
3 this diagram that you have, photograph number
4 one, I think you call it on your report, it
5 shows vehicle two beginning a left-hand turn,
6 the trailer's still straight?

7 A Yes, sir.

8 Q If vehicle two was actually straight, even with
9 the trailer coming across the median, would
10 that make any difference in your analysis?

11 A It would simply change a little bit the
12 vectors, where there would be less longitudinal
13 component than more of a lateral component.

14 Q Would that change whether or not somebody,
15 according to here, could have been hurt or not
16 hurt, but statistically sustained injuries to
17 their cervical spine and shoulder?

18 A Not in a meaningful way.

19 Q Not in a meaningful way, okay. "Accident
20 reconstruction," you have on the bottom of 11,
21 "applies a scientific approach to evidence
22 available in order to determine the dynamics of
23 an incident with the purpose of finding facts
24 related to vehicle positions." So we don't
25 have those, meaning skid marks and actual yaw

1 marks, gouge marks in the roadway, correct?

2 A Yes.

3 Q Relative speeds. We just have testimony of the
4 defendant driver saying I was going 20 miles an
5 hour.

6 A Yes.

7 Q We didn't download any of the data from that
8 vehicle, or inspect that vehicle.

9 A We didn't download of any other data that
10 there's no reasonable expectation might exist.

11 Q But we didn't do it.

12 A Correct.

13 Q And we don't know the actual vehicle damage
14 other than looking at the photograph.

15 A Correct.

16 Q "Within the context of this analysis, an
17 accident cause analysis and at-fault
18 determination were not concluded. Further, the
19 accident reconstruction was limited to the
20 point in time immediately before to immediately
21 after the vehicle-to-vehicle contact in order
22 to determine the forces and motions on the
23 vehicle to support the subsequent biomechanical
24 analysis." Okay.

25 Now, you said that the trailer would have

1 rotated clockwise.

2 A Counterclockwise.

3 Q Counter -- I'm sorry. I'm sorry, "The trailer
4 yawed, spun, counterclockwise, viewed from
5 above." So you're saying that the back end of
6 the trailer went, I guess it would be west.

7 A Rotated around, yes, sir.

8 Q Okay. If this impact was further up to the
9 middle of the trailer, would it then make the
10 back of the trailer yaw counterclockwise? Do
11 you understand what I'm asking?

12 A I do, but I think that you misspoke so I'm not
13 quite sure. Because you said counterclockwise
14 --

15 Q Clockwise, I'm sorry.

16 A Not if it hit the trailer. If it hit the
17 trailer, it would not make it rotate clockwise,
18 simply because the one fixed point on the
19 trailer, or generally fixed point on the
20 trailer is the hitch. So --

21 Q Which is connected to the truck.

22 A Correct. So as long as it remains connected to
23 the truck, an impact to the trailer will yaw it
24 counterclockwise.

25 Q No matter what?

1 A Yes.

2 Q If it hit closer to the back of the -- closer
3 to the back of the truck, the front of the
4 trailer, --

5 A Yes.

6 Q -- would it cause both vehicles to move in a
7 lateral direction?

8 A There would be a point where it would make both
9 vehicles move in a -- in a lateral direction.

10 Q Could that have happened here and both Mr.
11 Killian be telling the truth that he was pushed
12 sideways 15 feet?

13 A No, because of the impact was at the axle, so
14 it would push the tires proper. In order for
15 that to happen, it would have to be far enough
16 to where those tires are providing enough
17 support to give the trailer a rotation towards
18 the -- clockwise rotation. So because of the
19 accident, or the impact happens right at the
20 axles, it will push the axles such that it
21 rotates counterclockwise.

22 Q And the axles actually protrude from the
23 outside of the trailer, correct?

24 A Yes.

25 Q Do you know if, in looking at the photograph

1 and in looking at the trailer, whether or not -
2 - or looking at photographs of the trailer,
3 whether or not the GMC was hung up in the
4 trailer when it collided?

5 A They don't get hung up. Accidents don't happen
6 like that. The vehicle would project away from
7 the other one.

8 Q Okay. Impossible for that to happen?

9 A I don't like using the word "impossible," but
10 it simply just does not go along with the
11 physics that are involved here.

12 Q Now, you have, "A series of mathematical
13 simulations of the circumstances of the
14 accident were performed to assist the dynamics
15 of the accident." Are those things on this
16 jump drive that you gave me before?

17 A Yes, sir.

18 Q When you download this data, are you -- is it a
19 database where it has two vehicles, or is there
20 a spot to upload information on a trailer?

21 A I don't follow you.

22 Q Well, it's telling -- I'm sure in this data
23 it's going to tell you what one vehicle weighs
24 and what the other vehicle weighs.

25 A Yes.

1 Q We know what the GMC weighs, we don't know what
2 the trailer weighs.

3 A Correct.

4 Q You know what the Ford weighs.

5 A Correct.

6 Q So my question is, is there a number to put in
7 for that trailer?

8 A There's a series of numbers that when every 500
9 pounds -- well, we use a series of numbers
10 because we don't know. So we go from 2,000 to
11 4500 pounds. So we don't use a trailer. Or
12 you use a trailer and you repeat the simulation
13 putting different weights to the trailer. And
14 that way you can understand how it's going to
15 affect the dynamics of the other vehicle. And
16 then once you do that, you use the more severe
17 numbers that you have.

18 Q Okay, maybe I'm asking a very bad question. My
19 question is, when you're doing this electronic
20 simulation of data, you have to input numbers
21 as to the two vehicles, correct?

22 A Yes.

23 Q And what you're telling me is you put a
24 simulation of the GMC, and you put -- 'cause
25 you didn't know what the trailer weighed and

1 all the stuff on the trailer weighed, you did
2 some assumption that it weighs from here to --
3 x to y.

4 A Yes.

5 Q And you did a bunch of different scenarios.

6 A Yes.

7 Q Is there a simulation that you did that has
8 vehicle one, GMC, vehicle two, trailer, vehicle
9 three, truck connected to trailer?

10 A They should be there, yes, sir.

11 Q So that's on this jump drive?

12 A They should be.

13 Q And if they're not, they weren't done?

14 A No, they were done. They should be there. If
15 they're -- if they're not, I'd be happy to
16 recreate them because they should be there.

17 Q Okay. Earlier you testified that all of the
18 data that you did that you performed is on this
19 jump drive.

20 A Yes, sir.

21 Q After this deposition I'm going to go look at
22 this.

23 A Sure.

24 Q I didn't get it before so I didn't have the
25 opportunity. Is there some other data out

1 there, or calculations that you did that are
2 not on this jump drive?

3 A Not that I'm aware of.

4 Q So in formulating this opinion that's written,
5 that we're deposing you about today, all of
6 that information is on this jump drive?

7 A It should be there.

8 Q I have a problem with the "should" part.

9 A Well, sir, we do our best to preserve
10 everything we do, but it certainly can happen
11 that some simulations may be done that don't
12 show up there. But for data that is presented,
13 there should be a simulation there. I expect
14 that they would be there.

15 Q Had you done any calculations with regard to
16 the weight of the trailer versus how it affects
17 the truck and the occupants in the truck when
18 there are forces placed on the trailer itself?

19 A Yes, sir. And there's going to be a specific
20 PDF on that, which is what I have -- I've be
21 referring to that as we've been in the
22 deposition.

23 Q So does a lighter -- just for brevity -- does a
24 lighter trailer being hit in a similar way
25 affect the truck pulling it less or more?

1 A It sounds like a straightforward question and
2 it isn't. The answer is that the lighter it
3 is, the less it affects it in the lateral way.
4 But -- excuse me, yeah, the lighter it is, the
5 less it affects it on the lateral way. But it
6 affects it more in the longitudinal direction.
7 So it shifts -- a lighter trailer will shift it
8 to the side less, and fore and back more.

9 Q Shift the truck to the side less?

10 A Yes.

11 Q And where --

12 A Or it will in part that acceleration to the
13 truck less severe or more severe.

14 Q And a heavier trailer would cause those forces
15 to do what?

16 A Heavier trailer would have a more severe effect
17 on the lateral dimension. A less severe effect
18 on the longitudinal dimension.

19 Q Okay.

20 A But by the way, we're talking about fairly
21 modest changes here. So from .8 to -- to about
22 .8 something to about 1.2 g's in the
23 longitudinal -- in the lateral direction, and
24 from about 2 g's to 1.4 g's in the longitudinal
25 direction, okay.

1 Q And the occupants in this accident of the Ford
2 are getting both of those --

3 A Yes, sir.

4 Q -- changes in movement, correct?

5 A Yes, sir.

6 Q Okay. This is page 13, the top paragraph.

7 "Simulations were completed for several
8 possible braking scenarios, foot staying on the
9 brake versus foot coming off the brake, and
10 braking effort, normal braking versus forceful
11 braking, for the subject Ford." So this is
12 where I -- is this a clerical error, or is your
13 calculations regarding braking for the Ford at
14 the time of the accident, or accelerating at
15 the Ford at the time of the accident?

16 A I need to check, sir, I don't know as I sit
17 here.

18 Q Would it make a difference?

19 A Very little.

20 Q But we don't know how little.

21 A Correct.

22 Q But those analysis would be on here, on this
23 jump drive?

24 A I expect that they will be, yeah.

25 Q But if this report on page 13 is correct and

1 the simulations were done with regard to
2 braking, not accelerating, the data would not
3 be correct; is that a fair statement?

4 A There would be some variances.

5 Q So it wouldn't be correct.

6 A There would be some variances.

7 Q Okay. Could a delta-V analysis been done on
8 the trailer and the Ford truck in this
9 particular accident?

10 A On the Ford truck, it does not give you a
11 delta-V analysis because it's a non-contact
12 vehicle. And because of the nature of --
13 because the nature of the impact, it does not
14 give a delta-V analysis, it does give you --
15 there is a delta-V response for the trailer, as
16 there is for the Chevrolet.

17 Q I have a problem with the analogy and maybe you
18 can explain it to me, of how a vehicle pulling
19 something -- pulling something gets hit and the
20 thing that it's pulling gets hit and it doesn't
21 -- it doesn't cause any issue, or what did you
22 call it?

23 A I'm -- I don't know.

24 Q The non-contact vehicle, you're putting the
25 truck that's connected to the trailer, the

1 trailer gets demolished, totaled --

2 MR. LAVELLE:

3 Object to the form of the question.

4 MR. CAUBARREAUX:

5 Q -- axle's ripped off, but you're saying it's a
6 non-contact vehicle when they're connected.

7 A Correct, it's a non-contact vehicle. They're
8 coupled.

9 Q Okay. And so if an 18-wheeler trailer, a guy
10 driving an 18-wheeler, his trailer gets run
11 through by a train and he doesn't get run over
12 because it didn't technically hit the tractor
13 that's pulling it, that's a non-contact
14 vehicle?

15 A Contextually, it's a very different situation.
16 If there is net motion, then sure. But there is
17 no net motion. That's the whole point. There
18 is a short vibration or acceleration. The
19 vehicle shakes, but it does not move as a
20 result of impact. So there is no delta-V.
21 That's why there's a mention that the idea of
22 delta-V is not applicable for this type of
23 accident.

24 THE WITNESS:

25 Excuse me for a second before you ask

1 the next question. I'm somewhat thirsty
2 and I didn't see any water here. Do you
3 mind if we take a five-minute break, I run
4 downstairs and get water for everyone?

5 MR. CAUBARREAUX:

6 I'm fine, get whatever water you need,
7 I'm good.

8 -- BREAK --

9 MR. CAUBARREAUX:

10 Q All right, on page 14, you're talking about the
11 "occupants accelerations are damped by the
12 coupling of the occupant's mass and the seats
13 and are reduced by 60 percent in relation to
14 those of the vehicle." What exactly does that
15 mean?

16 A Sure. When we have this -- the kind of side
17 acceleration that we have in such an accident
18 like this one, it's fundamentally different
19 than when we have, let's say, a rear end
20 impact. When we have a rear end impact, the
21 person moves back, loads th seat back, and then
22 comes forward at a greater acceleration, at a
23 greater peak acceleration than the peak
24 acceleration of the vehicle. When you have a
25 sideswipe, you have a sort of transient lateral

1 frontal acceleration like you would have here,
2 the acceleration of the vehicle is greater than
3 the peak acceleration of the occupant.

4 Q Okay. So they wouldn't move as much is what
5 you're saying.

6 A Correct.

7 Q But in this case they are going to move forward
8 when the GMC hits the trailer and is turning
9 the opposite way of the trailer is going,
10 correct?

11 A Yes.

12 Q And they would also move laterally at the same
13 time with the yaw of the trailer.

14 A Not with the yaw of the trailer. They would be
15 going -- they would be going forward and then
16 towards the left. So as you were showing me,
17 you were twisting your shoulders. That's not
18 the type of motion that would happen here.
19 Rather than twisting your shoulder, they would
20 just move at an angle.

21 Q Oh, okay. You have, "Noteworthy," and I'm on
22 page 15 at the top, you said "Noteworthy for
23 Mr. Killian, disc bulging has been reported in
24 conjunction with other degenerative symptoms
25 including disc space narrowing, disc

1 desiccation, osteophyte formation, and
2 stenosis." Are you talking about him, are you
3 talking about statistics, or?

4 A No, generally, disc bulging has been -- so he
5 had sort of a bulge where there was no fracture
6 or dislocation or discreet prolapse, and that
7 is something that is generally reported along
8 with other degenerative effects, such as
9 narrowing, desiccation, osteophytes, and
10 stenosis.

11 Q You then have, "The specific mechanism for
12 degenerative disc bulging is chronic exposure
13 to repetitive loading, such as in occupational
14 lifting. This is consistent with Mr. Killian's
15 occupation in the wood industry." Are you
16 saying that you think his disc bulge that he
17 had is related to his work?

18 A No, sir.

19 Q What are you saying, then?

20 A What I'm saying is that for someone who has
21 that occupation, there is a greater than
22 average expectation for there to be disc
23 bulging.

24 Q Okay, but a disc bulge may have occurred in
25 this car accident, correct?

1 A The mechanisms to cause that were not present
2 at this accident.

3 Q Okay. So if Mr. Killian had an MRI taken a
4 week before this accident that showed no disc
5 bulging, and he got in this accident and a week
6 after the accident had a disc bulge, it could
7 not occur in this accident?

8 MR. LAVELLE:

9 I'm going to object to the form of the
10 question. It assumes facts not in
11 evidence.

12 THE WITNESS:

13 We'll go back to the could not. And I
14 do not say "could not," I would simply say
15 that the mechanics of the accident are not
16 consistent with conducting that type of
17 pathology.

18 MR. CAUBARREAU:

19 Q And again, you would defer to the medical
20 doctors who treated Mr. Killian to tell us what
21 was medically caused by this accident?

22 A I would simply say that it's not a question
23 that I answer.

24 Q So medical causation is not a question that you
25 answer. Any questions regarding that, you're

1 not going to answer.

2 A Correct.

3 Q And you have no expertise to answer them?

4 A Correct.

5 Q Okay. And this is a -- maybe a repetitive
6 question, you can't give me an opinion as to
7 what is causing either Mr. Killian or Ms.
8 Banes' pain in any part of their anatomy,
9 correct?

10 A Correct. Biomechanics does not answer that
11 question.

12 Q You have on the next page, page 16, that "Both
13 Ms. Banes and Mr. Killian stated they have
14 experienced injuries to their right shoulders
15 while the vehicle swung sideways." And you
16 have "Their description of sway is not
17 consistent with the nature of the accident."

18 A Yes.

19 Q Okay. But I think we covered this earlier, if
20 they did get pushed laterally toward the side
21 15 feet as they testified, then that would be a
22 mechanism that could produce injury.

23 A It could produce contact to the left shoulder.
24 Because if it's occurring like that, it's
25 occurring towards the right, which would move

1 them inside the vehicle towards the left.

2 Q How about when they returned -- the return
3 motion when they swing back? If it moves left,
4 they got to go back right to get there, would
5 they hit the right shoulder, as well?

6 A No, sir. There's no elastic structure that
7 forces them in the other direction. That's in
8 analog to the question of rear end versus
9 sideswipe or lateral impacts.

10 Q And you have "During the first phase swing to
11 the left," and I think you're talking about
12 what you actually identified in this accident,
13 "Mr. Killian's left shoulder could have made
14 slight contact with the door, the B-pillar,"
15 correct?

16 A Yes.

17 Q You have on page 17 in the middle of your page
18 there, it says, "The science of injury
19 biomechanics is fundamentally different from
20 that of medicine." I think we covered that.
21 "It does not offer diagnosis, treatment, or
22 prognoses but instead addresses the
23 relationships between events and damage to
24 tissue by studying physics of accidental
25 events, the properties of tissue, and the

1 application of loads to tissue in accidental
2 events." My question to you is this, in doing
3 so, people's body makeup is different, would
4 you agree?

5 A In part. People's makeup is not different,
6 tolerances may be different. So when we are --
7 so when we are addressing things in terms of
8 tolerance, then sure. But the opinions that
9 are contained here are not discussing
10 tolerances, they're discussing basic mechanism.
11 And even if the amount of forces that will
12 induce this, or that type of injury, may be
13 different from person to person. In basic
14 mechanism that induces those same injuries,
15 it's the same.

16 Q I was watching the National Championship last
17 night. Back in the day I played football and I
18 could have run and hit with those guys back in
19 the day, but if I did that today, they'd have
20 to come pick me up with an ambulance. My point
21 is, as a person gets older, as a person gets
22 heavier, as a person has illnesses, as a person
23 has different things, are their tolerances for
24 injury to a specific area different?

25 A Tolerances, yes. Fundamental mechanisms, no.

1 So the tolerances --

2 Q From the mental mechanisms?

3 A Fundamental mechanisms.

4 Q Oh, fundamental, I'm sorry. So you're looking
5 at statistical data based on hundreds of people
6 or thousands of people in these studies?

7 A Yes. And different types of studies.

8 Q Okay. In these studies you look at, is a
9 person's age, does a person's age make them
10 more susceptible to the effects of trauma?

11 A The answer is, again, to the -- when you say
12 "more susceptible," you mean the tolerances
13 will change. So let's say we apply a
14 compression load, grandma will have a much
15 lower compression load to fracture than
16 linebacker. Those two numbers, numbers would
17 be different, but if you compress grandma's
18 spine, you'll get a compression fracture. And
19 if you compress linebacker's spine, you'll get
20 a compression factor. Just at very different
21 numbers. So the tolerances are very different,
22 the mechanisms are not.

23 Q Well, the pushing on the spine is the
24 mechanism, it's the same. But what my question
25 is, grandma's spine's going to burst a lot

1 quicker than linebacker's spine. If they're
2 sitting side by side and you're pushing them
3 down the exact same way.

4 A Absolutely.

5 Q That's my point. The anatomy of each
6 individual person is different.

7 A Yes. Now, where that analogy goes differently
8 than you and I might think, let's say if you a
9 compression, then grandma will be much weaker
10 than mister linebacker. But let's say if we
11 put a mechanism that will tend to do a disc
12 injury, which would be flexion and compression,
13 then it might go the other way. Because
14 grandma may end up with a fracture before
15 mister linebacker, whereas he will have a disc
16 injury. So the mechanisms will be the same, but
17 at some point, some things become stronger than
18 others. So tolerances only gets us so far.

19 Q Okay. So in certain accidents that both of us
20 attorneys have handled over our careers, there
21 are certain people that get killed in an
22 accident and certain people that walk away.

23 A Sure.

24 Q Is that a tolerance issue or is that a
25 mechanism -- they're both in the same car

1 wreck, they're both in the same vehicle with
2 the same delta-V, with the same everything, why
3 does one person snap their neck and die, and
4 the next person doesn't have a scratch on them?

5 A There are questions of tolerances, and there is
6 no denying the fact that there can be other
7 elements that we can't assess. And that is the
8 element of luck. And I've come across exactly
9 what you're saying. The vehicle that had a
10 frontal accident at 35 mile an hour delta-V,
11 rear ender at 71 mile an hour delta-V and he
12 had a mild traumatic brain injury and a humerus
13 fracture, that was all. He's not walk -- he
14 didn't walk away, but that's close to walking
15 away from something that -- on either of those
16 two hits could have been fatal.

17 Q I'm getting close to being done, let me check
18 my notes. So what we know from talking
19 already, I'm just going to surmise this, there
20 was no complete accident reconstruction done,
21 correct?

22 A Correct.

23 Q We don't know the weight of the trailer or the
24 stuff on the trailer, the ATV or the lawnmower.

25 A Correct. Simulations were done -- that was

1 addressed by doing a range from minimum to
2 maximum.

3 Q You didn't inspect either truck.

4 A Correct.

5 Q You didn't inspect either truck for damage or
6 damage that was not repaired.

7 A Correct.

8 Q You did not download any of the data from any
9 vehicle.

10 A Correct.

11 Q You have no skid data.

12 A Correct.

13 Q You did not measure the scene of the accident.

14 A Correct.

15 Q And you did not go to the scene of the
16 accident.

17 A Well, again, once the vehicles are gone, the
18 scene becomes a site, so we did not go to the
19 site of the accident.

20 Q You did not go to the site of the accident.

21 A Correct.

22 Q You did not test what it would take to deform
23 the metal on the trailer itself.

24 A Correct.

25 Q You did not test what it would take the break

1 the axle on the trailer.

2 A Correct.

3 Q You did not test what force it would take to
4 break the bolts on the leaf springs of the
5 truck.

6 A Correct.

7 Q And you did not test what forces it would take
8 to bend the receiver hitch.

9 A Correct. Again, I did not test specifically to
10 this case. Let's clarify that.

11 Q And you cannot give us an opinion on medical
12 causation as to Ms. Banes or Mr. Killian,
13 correct?

14 A That's absolutely correct.

15 Q And as to the both vehicles, you do not know
16 whether or not the air bags deployed, correct?

17 A May I see that police report, please? In the
18 Anderson vehicle, the air bags did not deploy,
19 per the accident report. In the Killian
20 vehicle, the air bags did not deploy, per the
21 accident report.

22 Q Okay, per the accident report. You don't know
23 because you didn't inspect the vehicles,
24 correct?

25 A I don't have personal knowledge other than

1 reading the accident report.

2 Q Okay, thank you, sir.

3 MR. CAUBARREAU:

4 Okay, I think that's all I have. Thank
5 you.

6 MR. LAVELLE:

7 I have no questions.

8 -- OFF THE RECORD --

9 MR. CAUBARREAU:

10 Sir, you have the right to read and
11 sign your deposition or you can waive that
12 right. But I need you to elect one or the
13 other.

14 THE WITNESS:

15 I will read and sign.

16 MR. CAUBARREAU:

17 Let me ask one other question.

18 MR. CAUBARREAU:

19 Q I got this list, is this the complete list of
20 all of your testimony?

21 A Very much so, yes, sir.

22 Q Okay, I didn't go -- I went through the last
23 seven years of this list. I didn't go through
24 all of it because it's from '05, I think. Does
25 that sound correct?

1 A Yes.

2 Q In the last seven years, it appears that you
3 worked for plaintiffs and defendants.

4 A Yes.

5 Q You worked for plaintiffs 10 times and
6 defendants 256 times, 96.1 percent. Does that
7 sound about right?

8 A That sounds about right.

9 MR. CAUBARREAU:

10 Okay, thank you sir. That's all I
11 have.

12 THE WITNESS WAS EXCUSED.

13 DEPOSITION CONCLUDED AT 2:38 p.m.

14 COURT REPORTER:

15 Did you need a copy of his deposition?

16 MR. LAVELLE:

17 Yes, uh-huh.
18
19
20
21
22
23
24
25

REPORTER'S PAGE

I, Cynthia M. Hare, Certified Court Reporter, in and for the State of Louisiana, the officer, as defined in Rule 28 of the Federal Rules of Civil Procedure and/or Article 1434 (b) of the Louisiana Code of Civil Procedure, before whom this sworn testimony was taken, do hereby state on the Record:

That due to the interaction in the spontaneous discourse of this proceeding, dashes (--) have been used to indicate pauses, changes in thought, and/or talkovers; that same is the proper method for a Court Reporter's transcription of a proceeding, and that the dashes (--) do not indicate that words or phrases have been left out of this transcript;

That any words and/or names which could not be verified through reference material have been denoted with the phrase "(spelled phonetically)".

Cynthia M. Hare, CCR
Certified Court Reporter
Louisiana License #2010007

1 CERTIFICATE

2 This certification is valid only for a
3 transcript accompanied by my original signature and
4 original required seal on this certificate.

5 I, CYNTHIA M. HARE, Certified Court Reporter in
6 and for the State of Louisiana, as the officer
7 before whom this testimony was taken, do hereby
8 certify that DR. RICHARD BARATTA, PH.D., P.E., after
9 having been duly sworn by me upon authority of R.S.
10 37:2554, did testify on the 12th day of January
11 2021, at Metairie, Louisiana, as hereinbefore set
12 forth in the foregoing 81 pages; that this testimony
13 was reported by me in the Voicewriting reporting
14 method, was prepared and transcribed by me or under
15 my personal direction and supervision, and is true
16 and correct to the best of my ability and
17 understanding; that the transcript has been prepared
18 in compliance with the transcript format guidelines
19 required by statute and rules of the board; that I
20 am informed about the complete arrangement,
21 financial or otherwise, with the person or entity
22 making arrangements for deposition services; that I
23 have acted in compliance with the prohibition on
24 contractual relationships, as defined by Louisiana
25 Code of Civil Procedure Article 1434 and rules of

1 the board; that I have no actual knowledge of any
2 prohibited employment or contractual relationship,
3 direct or indirect, between a court reporting firm
4 and any party litigant in this matter, nor is there
5 any such relationship between myself and a party
6 litigant in this matter; that I am not related to
7 counsel or to any of the parties hereto, I am in no
8 manner associated with counsel for any of the
9 interested parties to this litigation, and I am in
10 no way concerned with the outcome thereof.

11 This 15th day of January 2021, Metairie,
12 Louisiana.

13
14
15
16
17 Cynthia M. Hare, CCR
18 Certified Court Reporter
19 Louisiana License #2010007
20
21
22
23
24
25

<div>Exhibits</div> <div>Rimkus Consulting Exhi bit 01 4:9 7:17 8:5</div> <div>Rimkus Consulting Exhi bit 02 4:10 8:24 9:9</div> <div>\$</div> <div>\$445.00 25:17</div> <div>0</div> <div>05 79:24</div> <div>1</div> <div>1 7:17 8:5 15:16</div> <div>1.2 63:22</div> <div>1.2g's 15:14</div> <div>1.4 63:24</div> <div>10 20:22 80:5</div> <div>10/12 20:19</div> <div>11 55:20</div> <div>12 20:22</div> <div>13 64:6,25</div> <div>14 67:10</div> <div>15 41:11 43:12 44:4 52:8 54:13 58:12 68:22 71:21</div> <div>150 17:2</div> <div>16 71:12</div> <div>165 23:16,21,24 24:9</div> <div>167 23:16,21</div> <div>17 72:17</div> <div>18 26:8</div> <div>18-wheeler 66:9,10</div> <div>1984 5:20</div> <div>1986 5:22</div> <div>1989 5:24</div> <div>1g 15:14</div> <div>2</div> <div>2 8:24 9:9 32:16 63:24</div> <div>2,000 15:18 60:10</div> <div>20 19:11 20:17 56:4</div> <div>2020 9:2</div> <div>250 18:7</div> <div>256 80:6</div> <div>2:38 80:13</div> <div>2g' 15:16</div> <div>3</div> <div>30 9:2 48:9</div>	<div>35 76:10</div> <div>4</div> <div>4,000 20:16</div> <div>4,500 15:18</div> <div>40 18:11 48:7,10</div> <div>45 48:4</div> <div>4500 20:16 60:11</div> <div>5</div> <div>5 52:6</div> <div>500 5:12 60:8</div> <div>6</div> <div>60 67:13</div> <div>7</div> <div>7 11:11</div> <div>71 76:11</div> <div>8</div> <div>8 5:11 63:21,22</div> <div>9</div> <div>90 34:7</div> <div>96.1 80:6</div> <div>A</div> <div>ability 32:25</div> <div>absolutely 37:23 75:4 78:14</div> <div>accelerating 36:1,6 64:14 65:2</div> <div>acceleration 15:15 37:25 38:5 63:12 66:18 67:17,22,23,24 68:1,2,3</div> <div>accelerations 15:13 17:8 39:12,20 41:7 67:11</div> <div>accident 6:8,9,11,22,23 9:15,17,21 12:19,23 13:2 14:8,21 15:20 17:20,23 18:12,14 21:9, 16,18,20 22:2,8,25 23:16 24:2 25:10 36:12 38:8 39:16 40:8,9,10 41:5,18 42:9,22,24 43:3,9 44:7,14 45:3 46:8,12,17 47:25 48:6 52:10,13,20 53:1,14,19 55:19 56:17,19 58:19</div>	<div>59:14,15 64:1,14,15 65:9 66:23 67:17 69:25 70:2,4,5,6,7,15,21 71:17 72:12 75:22 76:10,20 77:13,16,19, 20 78:19,21,22 79:1</div> <div>accidental 72:24 73:1</div> <div>accidents 59:5 75:19</div> <div>account 12:13 45:7</div> <div>accurately 35:9</div> <div>ACM 16:15</div> <div>activities 39:14</div> <div>actual 32:20,21 47:18 48:25 53:19,21 55:25 56:13</div> <div>address 5:8,10</div> <div>addressed 77:1</div> <div>addresses 72:22</div> <div>addressing 73:7</div> <div>advanced 46:5</div> <div>affect 60:15 62:25</div> <div>affects 62:16 63:3,5,6</div> <div>afterformation 42:25</div> <div>age 45:8,15 74:9</div> <div>age-related 45:16</div> <div>aging 45:21,22</div> <div>agree 35:6 73:4</div> <div>air 14:7,10 16:23 49:3 78:16,18,20</div> <div>ambulance 73:20</div> <div>amount 73:11</div> <div>analog 72:8</div> <div>analog 10:6,8</div> <div>analogy 38:3 65:17 75:7</div> <div>analyses 17:7</div> <div>analysis 15:8 17:16,23 18:1 19:7 21:24,25 22:1,7,11,15,24 23:7,12 25:23 30:16 47:6,12 53:15 54:19 55:10 56:16,17,24 64:22 65:7, 11,14</div> <div>analyze 20:1</div> <div>anatomy 71:8 75:5</div> <div>Anderson 78:18</div> <div>angle 34:9,11,12,15 49:25 68:20</div> <div>answers 23:3 42:2</div> <div>appears 8:21 24:17 80:2</div> <div>applicable 66:22</div> <div>application 6:3 73:1</div> <div>apples 55:21</div> <div>apply 74:13</div> <div>approach 55:21</div> <div>archived 26:24</div> <div>area 73:24</div>	<div>areas 6:7</div> <div>argue 32:5</div> <div>arguing 32:5 47:1</div> <div>argumentative 22:22 49:10</div> <div>arise 6:4</div> <div>articles 28:15</div> <div>asphalt 11:5,21 12:2</div> <div>assess 76:7</div> <div>assist 59:14</div> <div>assume 12:16 17:5,7 36:6 43:2</div> <div>assumed 12:15</div> <div>assumes 70:10</div> <div>assuming 16:13 17:4</div> <div>assumption 61:2</div> <div>at-fault 23:7 56:17</div> <div>attach 7:16</div> <div>attachments 8:21 40:5</div> <div>attempt 9:16 24:24</div> <div>attempted 25:1</div> <div>attempting 23:23 24:12, 19 34:13 35:18</div> <div>attorney 13:21 29:15</div> <div>attorney's 13:20</div> <div>attorneys 75:20</div> <div>ATV 15:22 16:6 76:24</div> <div>autostats 27:16</div> <div>average 69:22</div> <div>avoid 24:24</div> <div>aware 62:3</div> <div>axis 10:11</div> <div>axle 47:8 50:16 51:14 52:19 58:13 78:1</div> <div>axle's 66:5</div> <div>axles 58:20,22</div> <div>B</div> <div>B-PILLAR 72:14</div> <div>bachelor's 5:18</div> <div>back 33:4,7,8,16,19 34:10 35:3,14 36:16 57:5,10 58:2,3 63:8 67:21 70:13 72:3,4 73:17,18</div> <div>background 5:17</div> <div>backwards 36:13</div> <div>bad 60:18</div> <div>bag 16:23 49:3</div> <div>bags 14:7,10 78:16,18, 20</div> <div>Banes 5:6 28:12,18,23 46:7,14,15 53:10 71:13 78:12</div> <div>Banes' 28:11 71:8</div>	<div>Baratta 5:1,9</div> <div>barely 50:23</div> <div>base 42:10</div> <div>based 14:16 26:3 52:15 74:5</div> <div>basic 73:10,13</div> <div>basically 11:9 30:4 39:5</div> <div>basis 18:8 26:7 32:4 54:18</div> <div>beginning 55:5</div> <div>behalf 28:1</div> <div>belief 42:5</div> <div>bend 47:13,15 48:13 51:21 78:8</div> <div>bent 52:19</div> <div>big 39:6</div> <div>biology 6:5</div> <div>biomechanical 56:23</div> <div>biomechanics 6:8 44:23 71:10 72:19</div> <div>biomedical 5:19,21,23, 25 6:2</div> <div>bit 23:14 34:8 55:11</div> <div>blew 24:4</div> <div>body 22:14 35:10 44:16 51:5 73:3</div> <div>bolts 51:9 53:1 78:4</div> <div>bone 37:19</div> <div>bottom 7:12 22:25 52:6 55:20</div> <div>box 29:12</div> <div>brain 76:12</div> <div>brake 64:9</div> <div>braking 35:21,23 64:8, 10,11,13 65:2</div> <div>break 47:7 48:12 51:8 53:1 67:3,8 77:25 78:4</div> <div>brevity 62:23</div> <div>Brian 5:5</div> <div>broken 52:18</div> <div>building 54:18</div> <div>built 11:10</div> <div>bulge 69:5,16,24 70:6</div> <div>bulging 68:23 69:4,12, 23 70:5</div> <div>bumper 50:20,22,23</div> <div>bunch 28:14 61:5</div> <div>burst 74:25</div> <div>C</div> <div>calculated 20:6</div> <div>calculating 45:14</div> <div>calculation 20:14</div> <div>calculations 20:7 21:2,4 30:12 52:15 62:1,15 64:13</div>
--	---	---	---	--

call 55:4 65:22
 called 6:21 9:14 10:9
 calm 49:11
 car 10:13 22:14 69:25
 75:25
 careers 75:20
 case 6:6,25 8:19 12:14
 25:18 29:16 46:20 68:7
 78:10
 Caubarreaux 5:4,5 7:4,
 9,15,20 8:4,6,12,16 9:3,
 8,10 17:14 18:22 19:1
 21:12,17 22:18,23
 31:12 40:3,6,19 42:3
 49:13 54:9 66:4 67:5,9
 70:18 79:3,9,16,18 80:9
 causation 28:17,22
 44:17,19 45:2 70:24
 78:12
 caused 6:11,23 21:9,16,
 20 46:9 70:21
 causing 71:7
 center 36:9
 cervical 55:17
 cetera 30:13
 chair 39:17 40:11,12,18
 41:6
 Championship 73:16
 change 15:11,12,14
 17:1 45:18 47:24 48:5
 54:17 55:11,14 74:13
 changed 5:10 54:14
 character 37:10
 check 64:16 76:17
 Chevrolet 13:25 14:6
 27:15 32:17 65:16
 Chevy 27:17
 chronic 69:12
 circumstances 59:13
 cite 25:7
 claimed 25:12
 claims 52:17,22,23
 clarify 28:6 78:10
 clear 34:2
 cleared 18:6
 clerical 64:12
 client 13:20
 clockwise 57:1,15,17
 58:18
 close 9:19 76:14,17
 closer 58:2
 co-moments 11:12
 coefficient 11:5
 coefficients 11:11
 colleagues 27:21 28:1
 collided 59:4

collision 33:22 37:9,14
 comment 6:23
 complained 38:11
 complete 21:24,25
 22:11,15 53:14,20
 76:20 79:19
 completed 64:7
 compliance 48:1
 component 42:25 43:8,
 9,14 55:13
 composite 15:25
 compress 74:17,19
 compression 74:14,15,
 18,20 75:9,12
 compressive 40:20 41:2
 43:17
 concerned 28:7
 concluded 23:8 56:18
 80:13
 conclusions 32:15
 concrete 11:22 12:2
 condition 15:1
 conducting 70:16
 conducive 15:2 46:12
 conduct 25:15
 conjunction 68:24
 connected 32:19 39:4
 52:2 57:21,22 61:9
 65:25 66:6
 connecting 51:6
 connection 29:16 32:24,
 25
 consideration 45:13
 consistency 45:2
 consistent 17:20,22
 42:8 43:1,11 44:6 45:3
 46:18 52:12,14 69:14
 70:16 71:17
 contact 32:17,20 35:5
 43:24 50:1,2 56:21
 71:23 72:14
 contacted 32:20
 contained 28:20,21
 31:11 73:9
 contest 23:9
 context 56:16
 Contextually 66:15
 controlled 34:25
 copy 7:16,21 8:2 9:11
 24:1 27:8 29:14 30:12,
 18 31:17,22 80:15
 corner 18:18 49:19,24
 correct 6:12 8:9 9:4,12
 16:10,14 17:17 21:3
 23:17,24 24:20 25:13
 26:13 30:17 31:3 35:10,
 11 41:1 46:24 49:15

52:4 54:11 56:1,12,15
 57:22 58:23 60:3,5,21
 64:4,21,25 65:3,5 66:7
 68:6,10 69:25 71:2,4,9,
 10 72:15 76:21,22,25
 77:4,7,10,12,14,21,24
 78:2,6,9,13,14,16,24
 79:25
 correctly 13:6
 correspondence 6:13
 30:13
 counsel 27:10
 Counter 57:3
 counterclockwise 57:2,
 4,10,13,24 58:21
 couple 51:24
 coupled 32:23 42:17
 66:8
 coupling 67:12
 COURT 80:14
 cover 6:14,15 9:4
 covered 71:19 72:20
 crash 26:10
 created 33:24
 crossing 19:25
 crush 48:17,23 50:18
 51:1
 current 10:18
 cycles 18:7,11

D

daily 39:14
 damage 9:24 13:15,17,
 18 14:1,2,3 48:15 49:22
 50:11,16,25 51:5 53:22
 56:13 72:23 77:5,6
 damaged 53:11
 damages 45:5,25 46:19
 damped 67:11
 data 16:13,15 17:6,15,21
 18:2,3,13 19:6 27:17
 50:5 56:7,9 59:18,22
 60:20 61:18,25 62:12
 65:2 74:5 77:8,11
 database 59:19
 databases 50:15,17
 date 9:5
 day 18:11 46:6 73:17,19
 days 18:11
 dealing 11:21,23
 defendant 19:10 56:4
 defendants 80:3,6
 defense 31:16
 defer 70:19
 deflect 47:14

deform 77:22
 degeneration 46:3,4
 degenerative 68:24
 69:8,12
 degree 5:18,21 33:12
 34:8 46:2,3
 delta-v 19:20,23 38:22
 65:7,11,14,15 66:20,22
 76:2,10,11
 delta-v's 20:10,12
 demolished 66:1
 denying 76:6
 depend 54:25
 depending 15:17 54:5
 depends 20:2 54:24
 deploy 49:3 78:18,20
 deployed 14:7,10,15
 78:16
 deployment 16:23
 deposing 62:5
 deposition 6:17 25:25
 26:1,15 28:10,12 29:4
 61:21 62:22 79:11
 80:13,15
 depth 50:22,23
 description 71:16
 desiccation 69:1,9
 destroyed 49:4
 determination 31:19
 56:18
 determine 9:15,16 10:14
 11:2 22:12 25:10 47:18
 48:25 51:7 53:21 54:22
 55:22 56:22
 determining 11:25
 50:12
 diagnosed 46:13
 diagnosis 45:6 72:21
 diagram 24:2 41:5 55:3
 die 76:3
 difference 12:4,5 15:7
 55:10 64:18
 differences 12:2
 differently 75:7
 dimension 63:17,18
 dimensional 27:16
 dimensions 10:2 50:20
 direct 32:17 34:7 51:14
 directed 34:16
 direction 34:20 42:13
 58:7,9 63:6,23,25 72:7
 directly 52:3
 dirt 11:6
 disc 45:25 68:23,25
 69:4,12,16,22,24 70:4,6
 75:11,15

discovery 29:25 30:8
 31:11
 discreet 69:6
 discs 46:1,9
 discuss 45:15
 discussed 44:3
 discussing 73:9,10
 dislocation 69:6
 distance 42:15
 distribution 20:2
 doctor 44:9,10
 doctors 70:20
 documents 26:18,21
 27:1 29:14
 Dollars 25:16
 door 72:14
 download 16:13,14,16,
 18 17:6,15 56:7,9 59:18
 77:8
 downloaded 17:21 50:5
 downstairs 67:4
 drive 6:16 21:4 25:20
 26:14 27:6 29:3 31:23
 59:16 61:11,19 62:2,6
 64:23
 driven 13:7,19 24:18
 driver 23:8 24:25 56:4
 driver's 19:10 44:2
 driving 66:10
 dry 12:6,15
 due 39:13 42:23
 duly 5:2
 dumb 22:6,19,20
 duration 37:11
 dynamic 33:1 41:7
 dynamics 9:20 17:18
 25:9 38:24 42:8 44:3,7
 47:25 48:5 55:22 59:14
 60:15

E

earlier 27:22 61:17
 71:19
 easiest 32:2
 east 54:21
 easy 10:21,22
 ECM 16:13
 educational 5:17
 effect 63:16,17
 effects 69:8 74:10
 efficiently 34:20
 effort 64:10
 elastic 72:6
 elect 79:12
 electronic 60:19

electronically 8:1 element 76:8 elements 76:7 encompass 6:1 encompassed 6:16 encompasses 8:18 end 8:21 57:5 67:19,20 72:8 75:14 ender 76:11 energy 38:9 engaged 18:14 engineer 5:21 47:3 engineering 5:19,24,25 6:3,4 entered 24:12 entire 15:25 entirety 8:18 36:5 equate 37:15,16 equivalent 40:9 41:6 error 64:12 essentially 17:8 estimates 14:1 estimating 53:24 evaluation 41:18 event 17:16,18,19,22 18:4 19:14,22 52:16 events 72:23,25 73:2 evidence 14:12,13 54:7 55:21 70:11 exact 15:6 19:19 75:3 EXAMINATION 5:4 examined 5:2 exchange 32:1 excluding 11:14 excuse 14:19 16:24 17:12 46:14 63:4 66:25 EXCUSED 80:12 exhibit 7:17 8:5,24 9:9 39:24 exhibited 20:23 exist 19:8 56:10 exists 6:20 exit 23:20 expect 18:12 62:13 64:24 expectation 16:22 18:4, 15 45:23 56:10 69:22 experience 36:25 39:13 experienced 39:11 71:14 expert 8:8 22:13 expertise 71:3 explain 65:18 exposure 69:12 express 6:18	extent 13:15,18 F fact 76:6 factor 11:16 54:16 74:20 factors 11:7,8 54:5,25 facts 55:23 70:10 fair 9:18 44:12 65:3 fairly 9:19 63:20 fatal 76:16 fault 9:15 23:9 feel 46:21 feet 41:11 43:12 44:4 52:8 54:13 58:12 71:21 fenders 47:13 figure 39:24 figures 9:13 files 26:25 finally 5:23 find 31:17 36:2,4 finding 55:23 fine 27:13 67:6 finish 17:12 42:1 finishing 6:2 five-minute 67:3 fixed 57:18,19 flawed 17:23 flexion 75:12 follow 59:21 foot 64:8,9 football 73:17 force 20:23 34:16,23 43:4,14 47:7 48:12,14 50:16 51:8,20 53:5,6,7 78:3 forceful 64:10 forces 9:16,19 15:19 33:11,14,22,24 34:4,18, 21 36:11 38:10 44:13 45:14 46:16,18 48:24 49:1 50:10 52:25 56:22 62:18 63:14 72:7 73:11 78:7 Ford 13:7 15:13,15 16:12,15,20,21 17:4 27:17 32:18,21,23 33:1, 3,5,6,9 34:24 36:22 39:10 43:5 51:4,7 52:3, 16 60:4 64:1,11,13,15 65:8,10 Ford's 25:11 fore 42:25 63:8 form 21:11 22:17 41:22 44:22 54:2 66:3 70:9 formation 69:1	formulate 29:18 31:14, 15 formulating 62:4 Forty-five 25:16 forward 31:24 42:23 67:22 68:7,15 found 52:14 fracture 69:5 74:15,18 75:14 76:13 frail 45:18 frame 52:3 friction 11:4,10,15,19 12:12 front 9:11 20:14 33:16 34:10 35:1,14 36:17 49:18,23 50:19 51:1 52:19 58:3 frontal 68:1 76:10 full 5:7,9 13:18 41:17 fundamental 73:25 74:3, 4 fundamentally 67:18 72:19 furnished 29:25 future 28:4 29:13 G g's 63:22,24 garner 22:8 gather 9:22,23,25 10:1 gave 6:16 21:5 26:15 29:3 30:3 59:16 general 45:21 50:20 generally 10:15 29:24 31:10 42:12 57:19 69:4, 7 generate 8:8 generated 8:19 30:5,10, 11 germane 50:14 give 6:7,10,22 44:13,17, 19 58:17 65:10,14 71:6 78:11 giving 22:12 globo 9:9 GM 16:15 19:20 20:24 GMC 13:13,16,19 16:12 18:2,3,5,23 19:14,23 23:9 24:7 32:21 33:4 34:3,12 35:3,5,18 36:8 47:19 48:3,18,22 49:2, 15,16,23,24 50:4,5,6, 19,25 51:2 53:24 59:3 60:1,24 61:8 68:8 good 47:17 48:11 50:15, 17 67:7	Google 12:25 gouge 56:1 grandma 74:14 75:9,14 grandma's 74:17,25 grass 54:20 greater 12:8,9 67:22,23 68:2 69:21 Greenway 5:11 guess 22:6 24:1,14 25:8 44:20 57:6 guy 66:9 guys 73:18 H half 15:16 handled 75:20 happen 37:24 41:16 58:15 59:5,8 62:10 68:18 happened 22:12,25 23:2,16 58:10 happening 35:18 happy 29:7 61:15 hard 11:13 head 41:8 health 45:8 heavier 63:14,16 73:22 height 45:13 Highway 23:16 hired 13:21 25:13 hit 19:11 20:16 35:15 42:12 48:3 53:24 57:16 58:2 62:24 65:19,20 66:12 72:5 73:18 hitch 32:24 36:25 38:2 51:21 52:2,5 57:20 78:8 hits 20:19 34:14 36:9,18 68:8 76:16 hitting 24:24 34:3 37:14 42:12 48:7 Hold 49:7 hour 17:2 19:12 20:17, 19,23 25:17 48:4,7,9 56:5 76:10,11 Houston 5:15,16 humerus 76:12 Hundred 25:16 hundreds 74:5 hung 59:3,5 hurt 46:7,22 55:15,16 I ice 11:6 idea 66:21	identified 22:5 72:12 ignition 18:7,10 illnesses 73:22 immediately 54:6 56:20 impact 25:4 33:24 34:8 35:17 42:16,18 48:15 51:16 57:8,23 58:13,19 65:13 66:20 67:20 impacted 35:15 impacts 51:14 72:9 important 11:20 19:7 impossible 41:20 52:11 59:8,9 incident 55:23 include 47:25 including 28:14 68:25 incorrect 24:16 increase 45:24 48:1 indentation 49:18 independent 11:18 21:15,21,22 23:6 indication 14:8 individual 28:3 42:6 75:6 Individuals 45:19 induce 73:12 induces 73:14 industry 69:15 inertia 10:9,20,22 11:19 inertial 10:2,4 12:10 39:20 influence 54:24 influential 55:1 information 7:2,7 8:19 9:22,24 10:1,16 19:4 22:8 25:22 26:4,6,7,8 27:4 30:15 47:17 50:6, 9,13,15 59:20 62:6 injure 44:15 injured 46:15 injuries 25:12 38:11,21, 23 43:6,10,15,16,22,24 45:19,25 46:13 55:16 71:14 73:14 injury 39:3,8 43:5,14,21 44:14 46:10 71:22 72:18 73:12,24 75:12, 16 76:12 input 60:20 inside 38:18,19 72:1 inspect 12:18 13:1,7,11, 13 16:11,12 27:24,25 48:19,20,22 56:8 77:3,5 78:23 inspected 14:20 27:18, 23 28:1 48:20
---	---	---	---	--

inspection 30:11 51:10
inspections 13:3
interaction 19:18
interrogatories 30:25
intersection 24:12
intersectional 37:13
invoice 25:15,17
involve 10:6
involved 13:2 14:21
 59:11
issue 65:21 75:24

J

James 27:18
Jim 47:5
jump 21:4 25:20 26:14
 27:5 29:3 31:23 59:16
 61:11,19 62:2,6 64:23

K

keeping 14:24
killed 75:21
Killian 5:6 13:8 23:19,20
 24:15,25 28:11,18,23
 35:20 36:6 41:10 46:7,
 15 52:17 58:11 68:23
 70:3,20 71:7,13 78:12,
 19
Killian's 28:9 52:7 69:14
 72:13
kind 39:17 48:15 51:15,
 20 67:16
kinetics 22:9 23:5
knew 36:2
knowledge 78:25

L

lack 34:18
laid 12:24
lateral 33:11,13 34:21,
 23 40:22 41:3 43:8,9,18
 55:13 58:7,9 63:3,5,17,
 23 67:25 72:9
laterally 44:4 68:12
 71:20
Lavelle 7:1,6,18,23 8:14,
 25 9:6 17:11 18:20
 21:10 22:16,21 29:9
 30:21 31:4 40:1,13
 41:21 49:6 54:1 66:2
 70:8 79:6 80:16
lawnmower 76:24
lawyer 31:16
leaf 51:6,9 52:18 53:2
 78:4

left 23:23 24:13 38:18
 43:24 44:2 49:18 68:16
 71:23 72:1,3,11,13
left-hand 55:5
length 53:16,17
lesser 39:7
letter 9:4
letters 28:17,22
level 42:10
levels 39:13
lifting 69:14
light 33:4
lighter 62:23,24 63:2,4,7
likewise 19:6
limited 32:25 34:25
 56:19
linebacker 74:16 75:10,
 15
linebacker's 74:19 75:1
link 31:25
list 28:14 30:2 79:19,23
listed 26:9 32:3
literature 18:9
lived 37:25
living 39:14
load 40:20 74:14,15
loading 69:13
loads 39:20 40:22 43:18,
 19 45:14 67:21 73:1
location 15:1
long 57:22
longitudinal 15:15
 33:11,13,21 34:20
 40:22 41:3 42:14 55:12
 63:6,18,23,24
looked 21:8 27:14,21,22
 28:9,10 31:13,15,18
 32:6 47:3 51:14 53:21
lot 8:23 53:23 74:25
low 51:17
lower 12:11,12 74:15
luck 76:8
lying 41:20 42:19

M

made 16:17 32:21 38:3
 72:13
magnitude 39:19
make 10:21 12:5 14:5
 15:7 31:18 45:17 55:10
 57:9,17 58:8 64:18 74:9
makes 12:3
makeup 73:3,5
maps 12:25
mark 8:24

marks 54:10,12,15
 55:25 56:1
mass 67:12
master's 5:21
material 7:25
materials 27:3 28:13
 29:1,5,24 30:4,10,14
 31:9 32:3
mathematical 59:12
mathematics 5:20
matter 57:25
maximum 77:2
meaning 55:25
meaningful 12:3,5 15:9
 16:25 17:1 37:7,20
 38:5,14,15,20,23 39:3
 43:8,9,13,17 47:22,23
 55:18,19
meaningfully 17:25
means 16:1 28:2,7 30:9
 32:7 52:24
measure 77:13
measured 53:16,17
measurements 53:15
mechanics 45:3,4 46:11
 52:13 70:15
mechanism 43:4 69:11
 71:22 73:10,14 74:24
 75:11,25
mechanisms 25:11 43:7
 70:1 73:25 74:2,3,22
 75:16
median 54:20 55:9
medical 28:10,12,21
 29:2,17,22 32:6,7,9,10,
 11 44:9,10,17,19,21
 46:22,23 70:19,24
 78:11
medically 70:21
medicine 6:4 72:20
mental 74:2
mention 66:21
mentioned 37:24
metal 48:13 77:23
middle 35:12 57:9 72:17
mild 76:12
mile 76:10,11
miles 17:2 19:11 20:17,
 19,22 48:4,7,9 56:4
milliseconds 17:2
mind 67:3
minimal 49:18
minimum 77:1
minor 39:11 46:3 51:5
minute 36:4 49:7
misspoke 57:12

mister 75:10,15
models 19:20
modest 63:21
moment 10:22 25:1
moments 10:9,20 11:19
months 5:11
moreso 35:12
motion 33:1,5 35:1 37:1,
 20,21 38:6,20 39:2,3
 66:16,17 68:18 72:3
motions 23:5 25:10 37:8
 38:8,14,15 39:6,11
 56:22
move 35:4 58:6,9 66:19
 68:4,7,12,20 71:25
moved 5:13 15:4 42:15
movement 64:4
movements 22:10
moves 67:21 72:3
moving 22:14 38:2 44:3
mower 16:3
MRI 70:3
mud 11:6

N

narrowing 68:25 69:9
National 73:16
nature 65:12,13 71:17
necessarily 46:1,18
 50:14
neck 41:8 76:3
net 37:20,21 38:5 66:16,
 17
neurosurgeon 28:19,24
night 73:17
non-complete 22:7
non-contact 16:21
 52:16 65:11,24 66:6,7,
 13
normal 64:10
northbound 23:22
northwards 23:21
notes 76:18
Noteworthy 68:21,22
number 16:20 24:6,18,
 19 39:9,25 40:4 44:5,
 21,22 45:12,15 51:11,
 13 54:5,25 55:3 60:6
numbers 19:21 60:8,9,
 17,20 74:16,21

O

oath 41:15
object 21:11 22:17
 41:22 49:7,9 54:2 66:3

70:9
obtained 7:7
obvious 49:25
occupant 22:10 37:8
 38:9,18 68:3
occupant's 67:12
occupants 9:17 23:6
 25:11 38:15 39:9,10,21
 62:17 64:1 67:11
occupation 69:15,21
occupational 69:13
occur 70:7
occurred 12:23 25:5
 69:24
occurring 71:24,25
October 9:2
offer 72:21
office 5:13,15
officer 22:5 23:7,8
officer's 26:1
older 18:5 19:20 73:21
one's 33:18
opinion 6:11 21:9,15,19,
 21,23 22:13 29:19
 31:14 35:2 44:13,17,20,
 22 53:1 54:14 62:4 71:6
 78:11
opinions 6:7 26:3 54:16,
 18 73:8
opportunity 61:25
opposed 10:23 45:19
opposite 68:9
order 17:2 55:22 56:21
 58:14
original 7:22,24
orthopedic 28:19,24
osteophyte 69:1
osteophytes 69:9

P

P.E. 5:1
p.m. 80:13
pain 71:8
painted 39:24
paragraph 64:6
parameter 51:2
parameters 6:14
parked 18:17 20:22 33:3
part 8:7 29:25 30:7
 31:10 62:8 63:12 71:8
 73:5
parties 26:22
pathology 70:17
Paul 8:13
PDF 62:20

peak 67:23 68:3
 people 15:19 39:22
 42:20 74:5,6 75:21,22
 people's 73:3,5
 percent 67:13 80:6
 perceptions 42:21
 performed 13:3 59:14
 61:18
 person 13:20 43:5 45:8,
 9,18 46:20 67:21 73:13,
 21,22 75:6 76:3,4
 person's 40:23 45:15
 74:9
 personal 78:25
 personally 27:25
 Ph.d. 5:1,23
 phase 72:10
 photograph 13:25 14:18
 27:14 49:17,20 55:3
 56:14 58:25
 photographs 13:5,17,
 23,24 14:17 26:11,16,
 19,20 27:15 29:21
 30:11 35:6 40:5 59:2
 physical 13:3 32:20 45:8
 physically 12:21 13:1,9
 49:16 53:20
 physicians 45:6 46:23
 47:1
 physics 59:11 72:24
 pick 73:20
 pickup 51:21 53:11
 picture 39:6 49:5 50:7,
 24
 pitch 11:1
 place 6:18 12:24 42:5
 53:23
 plaintiffs 5:6 80:3,5
 played 73:17
 Plaza 5:11
 point 50:2,3 56:20
 57:18,19 58:8 66:17
 73:20 75:5,17
 police 25:25 31:5,8
 78:17
 policeman's 25:25
 position 35:9
 positions 55:24
 possibility 45:1
 Possibly 53:3,4
 post- 42:17
 potential 12:9 37:7
 38:21,23 39:7 43:19,24
 45:18,23,25
 potentially 54:17
 pounds 15:18 20:16
 51:24 60:9,11

practice 6:24
 pre-impact 42:17
 preformed 17:7
 present 70:1
 presented 62:12
 preserve 62:9
 presume 14:16
 Presumed 12:17,18
 pretend 44:10
 pretty 19:25
 primarily 42:24
 principles 6:3
 printed 7:25
 problem 62:8 65:17
 proceeding 24:9
 process 8:7 30:1,8
 31:11 40:17 45:22
 produce 71:22,23
 produced 9:1 26:21
 production 26:17,21
 30:24
 profession 5:25
 professional 5:8,10
 prognoses 72:22
 project 59:6
 prolapse 69:6
 proper 37:18 58:14
 properties 10:3,4 12:11
 72:25
 protrude 58:22
 provide 23:3 27:10 29:7
 provided 25:22 27:1
 29:1,6,15 30:5,6
 providing 58:16
 published 10:15
 pull 36:10
 pulling 34:5 62:25
 65:18,19,20 66:13
 pulse 38:1,5
 purely 29:24
 purpose 31:19 40:7
 55:23
 push 10:24 36:13 42:13
 50:18 58:14,20
 pushed 33:16,18 36:21
 41:11 42:23 43:2,12
 50:21 58:11 71:20
 pushing 36:19 54:12
 74:23 75:2
 put 7:19 8:5 34:4 60:6,
 23,24 75:11
 puts 34:15 44:25
 putting 60:13 65:24

Q

question 7:13 17:10
 19:9 21:7,11 22:6,19,20
 23:4 33:2 34:1 41:22
 44:20 50:8 54:2 55:2
 60:6,18,19 63:1 66:3
 67:1 70:10,22,24 71:6,
 11 72:8 73:2 74:24
 79:17
 questions 6:4 23:3 49:9
 70:25 76:5 79:7
 quicker 75:1
 quietly 40:16

R

railing 47:14
 raising 49:11
 ramp 23:20
 range 11:11 20:6,7,11,
 18 39:21 40:10 77:1
 ranged 20:9
 ranging 15:17
 rate 11:25 25:16
 read 79:10,15
 reading 22:2 79:1
 real 37:6
 realm 45:1
 rear 42:25 67:19,20 72:8
 76:11
 rearward 34:16 42:13
 reason 11:9 22:4 23:9
 reasonable 16:22 18:3,
 15 56:10
 reasons 16:20
 recall 13:6 28:22,25
 receive 29:10
 received 26:2 29:8
 receiver 51:21 52:2,5
 78:8
 reconstruction 6:8,10,
 22 9:15 22:8 41:18
 53:15,20 55:20 56:19
 76:20
 reconstructionist 21:19
 reconstructions 9:21
 record 5:8 19:14 79:8
 recording 16:24 17:3
 18:6,16
 records 28:10,12,21
 29:3,17,22 32:6,7,9,10,
 11
 recreate 61:16
 recreation 53:19
 red 33:3 39:24 40:7

reduced 67:13
 reference 28:4 29:13
 referenced 28:13
 referring 62:21
 reflected 35:9 48:15
 regard 6:9,11 16:11 22:9
 28:18,23 47:2 53:23
 62:15 65:1
 regular 45:22
 regurgitate 27:2
 regurgitated 29:6
 related 55:24 69:17
 relation 25:12 67:13
 relationships 72:23
 Relative 56:3
 relevant 51:3
 remains 57:22
 remember 5:12
 repaired 77:6
 repairs 14:5 27:16
 repeat 60:12
 repetitive 69:13 71:5
 report 8:8,11,18,20 9:1,
 11 14:8 22:2 23:14,15
 24:2,11 25:8,23 26:7,
 10,12 30:12 31:5,8
 32:4,16 35:20 36:5 52:6
 55:4 64:25 78:17,19,21,
 22 79:1
 reported 68:23 69:7
 reportedly 51:4
 REPORTER 80:14
 reports 6:9
 represent 5:5
 request 15:3 16:16,17
 19:4 30:24 51:6
 requested 6:13
 required 46:22 50:10
 response 65:15
 responses 30:24
 result 36:19 41:1 52:19
 66:20
 retain 29:11
 retained 25:9
 retention 8:7
 return 72:2
 returned 72:2
 review 26:6 29:2
 reviewed 29:22 30:6
 32:3
 Richard 5:1,9
 rights 29:11
 Rimkus 7:14 27:18
 ripped 66:5
 road 12:6,7,8,12 19:24
 20:22 23:19

roadway 11:4,5 12:15,
 23 19:25 54:7 56:1
 roadways 53:17 54:21
 role 42:6 44:23
 roll 11:1
 rotate 10:23,25 20:25
 36:25 57:17
 rotated 57:1,7
 rotates 58:21
 rotation 10:7 58:17,18
 routine 18:8 39:13
 routinely 18:10 39:22
 run 66:10,11 67:3 73:18
 running 19:23
 runs 33:4
 ruptured 46:9

S

scale 24:1
 scenario 21:8
 scenarios 61:5 64:8
 scene 12:19,20,22
 77:13,15,18
 science 72:18
 scientific 55:21
 scratch 76:4
 seat 67:21
 seats 67:12
 send 27:11 31:16,23,25
 sending 9:5
 sense 16:17
 separate 11:18
 series 59:12 60:8,9
 served 29:9
 set 19:21
 severe 60:16 63:13,16,
 17
 severity 51:16
 shakes 37:18 66:19
 shaking 37:1
 shape 44:22
 shift 63:7,9
 shifts 63:7
 shop 18:19
 short 33:10 37:25 38:4
 66:18
 shorter 37:11
 shortly 37:25
 shoulder 43:23,25 44:2
 46:10 55:17 68:19
 71:23 72:5,13
 shoulders 68:17 71:14
 show 14:1 62:12
 showed 17:8,21,24
 49:18 70:4

<p> showing 34:7 68:16 shown 13:17,22 shows 17:15,24 55:5 side 33:18,19 34:4 49:23 50:19 63:8,9 67:16 71:20 75:2 sideswipe 37:10,15,16, 17 38:4 39:23 40:25 67:25 72:9 sideways 20:19 43:2,12 52:8 54:13 58:12 71:15 sign 79:11,15 significant 37:4,6 38:10 39:2 43:4 51:25 52:25 similar 37:10 62:24 simple 19:25 simply 11:13 15:1 30:10 55:11 57:18 59:10 70:14,22 simulation 60:12,20,24 61:7 62:13 simulations 21:6 59:13 62:11 64:7 65:1 76:25 single 42:5 slr 5:5 7:5,10 8:10,22 12:20 13:14 14:14,23 15:5 16:17 17:7 18:1 19:3,5,13 21:6 23:18,25 24:3,5,8,10,21 25:3,6, 14,21 27:9,12,20 28:16, 25 29:5,20 30:19 32:4, 22 33:15,20,23 35:13, 16,19,22 39:15 40:21 41:8 44:8,12 46:25 47:9,11,16,20 48:14,21 49:21,25 52:5,9,21 53:6,13 55:7 57:7 59:17 61:10,20 62:9,19 64:3, 5,16 69:18 72:6 79:2, 10,21 80:10 sit 15:23 20:13 25:19 28:25 40:12 51:23 53:9 64:16 site 12:20 77:18,19,20 sitting 18:18 33:3 37:22 39:17 40:11,16,17 41:6 75:2 situation 66:15 skid 54:10,12,15 55:25 77:11 slid 52:7 slight 72:14 slow 20:24 42:14 small 12:3 17:8 46:2,3 snap 76:3 somebody's 22:13 42:7 someone's 39:1 </p>	<p> sort 43:20 67:25 69:5 sound 79:25 80:7 sounds 63:1 80:8 southbound 23:20 space 68:25 specific 43:15 45:4 62:19 69:11 73:24 specifically 6:19 18:25 20:5 26:23 28:5 78:9 speed 17:1 47:19 50:12 53:24 speeds 56:3 spin 11:14,25 12:10 Spinal 44:5 spine 40:23 43:18 55:17 74:18,19,23 75:1 spine's 74:25 spot 59:20 Sprader 27:18,20 47:5,6 sprains 43:20 44:5 45:24 spring 52:18 springs 51:6,9 53:2,10 78:4 spun 57:4 squares 41:2 stabilize 46:4 start 6:2 30:16 34:6 started 38:2 starts 10:5 26:8 34:22, 24 state 5:7 stated 52:24 71:13 statement 42:7 49:8 65:3 statistical 74:5 statistically 55:16 statistics 69:3 staying 64:8 stenosis 69:2,10 step 49:12 sticker 7:19 stop 36:10 stopped 19:24 straight 24:20 55:6,8 straightforward 63:1 strains 43:20 44:5 45:24 strictly 9:19 23:4 31:9 stronger 75:17 structural 14:3 structure 72:6 studies 74:6,7,8 studying 72:24 stuff 16:1 39:17 61:1 76:24 </p>	<p> subject 51:4 64:11 subpoena 27:5 29:8 subsequent 56:23 Suburban 34:3,13 sufficient 48:25 Suite 5:11 sum 41:2 summaries 32:10 support 56:23 58:17 surface 11:22 surgeon 28:19,24 surmise 76:19 surprisingly 51:17 susceptible 74:10,12 suspension 11:3 sustained 25:11 55:16 sway 71:16 swing 34:22 35:4 72:3, 10 swings 38:17 sworn 5:2 swung 35:2 71:15 symptoms 68:24 system 48:2 </p> <hr/> <p style="text-align: center;">T</p> <hr/> <p> t- 37:18 t-bone 37:13,18 takes 16:25 48:14 50:16, 18 51:16 talk 15:24 44:25 talking 8:23 30:23 33:13 63:20 67:10 69:2,3 72:11 76:18 technically 66:12 telling 10:17,18,19 41:10,17 48:4 58:11 59:22 60:23 tells 18:9 ten 26:10,16,19,20 27:15 tend 38:18 45:17 75:11 term 34:19 terms 37:6 41:13 42:14 73:7 test 77:22,25 78:3,7,9 testified 43:13 53:12 61:17 71:21 testify 5:3 testimony 19:10 56:3 79:20 Texas 5:15 thick 32:8 thing 6:20 31:1 40:11 48:11 65:20 things 10:14 11:15,16 </p>	<p> 30:7 45:9 53:18 54:10 59:15 73:7,23 75:17 third-party 29:15 thirsty 67:1 thought 36:2 thousand 51:24 thousands 74:6 time 17:18 35:21 36:12 37:11 56:20 64:14,15 68:13 times 51:12,13 80:5,6 tire 35:14,15 tires 11:3,23,24 12:4 35:8 36:18 58:14,16 tissue 45:5 72:24,25 73:1 tissues 44:15 45:17 46:19 today 7:3 8:1 62:5 73:19 tolerance 73:8 75:24 tolerances 73:6,10,23, 25 74:1,12,21 75:18 76:5 top 64:6 68:22 topics 6:14 totaled 14:3 18:17 66:1 town 5:14 tractor 66:12 trailer 13:4,6 14:20,22, 25 15:2,6,7,20,24,25 16:8 19:11,24 20:8,21, 25 24:25 27:15,16,17, 19,23,24,25 32:19,24 33:7,8 34:3,12,15,16 35:2,7,8,10 36:9,11,16, 17,24 37:20,22,23 38:2, 7,8,10,16,17,19,25 39:1,5 47:2,8,14 48:4, 20,24 49:1 50:8,10 52:18,19 53:17,25 55:9 56:25 57:3,6,9,10,16, 17,19,20,23 58:4,17,23 59:1,2,4,20 60:2,7,11, 12,13,25 61:1,8,9 62:16,18,24 63:7,14,16 65:8,15,25 66:1,9,10 68:8,9,13,14 76:23,24 77:23 78:1 trailer's 55:6 train 66:11 transcript 28:9,11 transferred 33:5 38:9 transient 67:25 translated 45:6 transmit 32:25 transmitted 34:18,23 38:1 </p>	<p> trauma 74:10 traumatic 76:12 treated 46:23 70:20 treatise 28:14 treatment 46:22 72:21 truck 32:21 34:5 36:20, 22 39:4,7 41:12 43:5 51:18,22 52:3,4 53:11, 16 54:22 55:2 57:21,23 58:3 61:9 62:17,25 63:9,13 65:8,10,25 77:3,5 78:5 true 19:11 truth 41:10 58:11 Tulane 5:18,22,24 turn 23:23 24:13 25:1 34:14 54:23 55:5 turning 23:21 42:11 68:8 twisting 68:17,19 type 9:22 32:24 34:4 47:6 48:12,13 66:22 68:18 70:16 73:12 types 11:23,24 46:13,16, 18 74:7 </p> <hr/> <p style="text-align: center;">U</p> <hr/> <p> uh-huh 34:17 43:22 80:17 ultimate 46:20 54:19 ultimately 19:18 un-meaningful 15:10 undeployment 19:21 undercarriage 14:2 49:4 undergo 18:10 37:19 39:22 underneath 53:11 understand 10:22 29:9 30:9,22 57:11 60:14 understanding 9:18 24:22 Understood 31:21 32:12 underwent 46:17 University 5:19 upload 59:20 usual 8:20 utility 35:8 </p> <hr/> <p style="text-align: center;">V</p> <hr/> <p> variances 65:4,6 vectors 55:12 veer 25:3,4 vehicle 9:25 10:4,14,19, 23 12:1,9 14:3 16:21,23 18:7,17,21 20:3,15,17 22:10 24:6,15,18,19,25 </p>
--	--	---	--	---

27:21 34:11,22 36:8 37:14,17,22 38:6,14,19 39:11 42:11 44:3 48:16 49:15,16,17 50:2,12 51:7,10 52:7 53:2 54:13 55:5,8,24 56:8,13,23 59:6,23,24 60:15 61:8 65:12,18,24 66:6,7,14, 19 67:14,24 68:2 71:15 72:1 76:1,9 77:9 78:18, 20 vehicle's 9:25 vehicle-to-vehicle 56:21 vehicles 9:17 10:3,20 13:1,5 18:9 19:19 23:5 24:12 37:19 53:21 58:6, 9 59:19 60:21 77:17 78:15,23 velocity 42:17,18 versus 11:22,24 12:6 62:16 64:9,10 72:8 vibration 37:2 66:18 Victor 5:9 viewed 57:4 vintage 18:5 voice 49:11	wreck 76:1 written 62:4 wrong 24:1	
Y		
	yaw 10:25 36:15,17,19 55:25 57:10,23 68:13, 14 yawed 57:4 yawing 34:24 years 18:18 79:23 80:2	
Z		
	zip 6:16	
W		
waive 79:11 walk 75:22 76:13,14 walking 76:14 watching 73:16 water 67:2,4,6 ways 11:12 45:12 weaker 75:9 week 70:4,5 weigh 14:21 weighed 15:4,22 16:4,6, 9 60:25 61:1 weighing 14:24 15:2 weighs 20:15 59:23,24 60:1,2,4 61:2 weight 10:5,6,18,24 11:18 15:6,7,17,20,25 20:2,3,9 45:13 62:16 76:23 weights 20:7 60:13 west 54:22 57:6 wet 12:6,9 Whatever's 32:2 whatnot 28:15 wood 69:15 word 59:9 work 11:10 25:15 29:16 50:13 69:17 worked 80:3,5		